B.Sc., BOTANY SEMESTER-WISE SYLLABUS AND MODEL QUESTION PAPERS OF THEORY AND PRACTICALS

(AS PER CBCS AND SEMESTER SYSTEM)

w.e.f. 2015-16

(REVISED IN APRIL, 2016)

AP STATE COUNCIL OF HIGHER EDUCATION
CBCS - PATTERN FOR BOTANY
### Structure of B.Sc Botany under CBCS

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Semester</th>
<th>Paper</th>
<th>Title</th>
<th>Marks</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>I</td>
<td>I</td>
<td>Microbial Diversity, Algae and Fungi</td>
<td>100</td>
<td>03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Practical –I</td>
<td>50</td>
<td>02</td>
</tr>
<tr>
<td></td>
<td>II</td>
<td>II</td>
<td>Diversity Of Archaegoniates &amp; Anatomy</td>
<td>100</td>
<td>03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Practical –II</td>
<td>50</td>
<td>02</td>
</tr>
<tr>
<td>II</td>
<td>III</td>
<td>III</td>
<td>Plant taxonomy &amp; Embryology</td>
<td>100</td>
<td>03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Practical –III</td>
<td>50</td>
<td>02</td>
</tr>
<tr>
<td></td>
<td>IV</td>
<td>IV</td>
<td>Plant physiology &amp; Metabolism</td>
<td>100</td>
<td>03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Practical –IV</td>
<td>50</td>
<td>02</td>
</tr>
<tr>
<td></td>
<td>V</td>
<td>V</td>
<td>Cell Biology, Genetics &amp; Plant breeding</td>
<td>100</td>
<td>03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Practical –V</td>
<td>50</td>
<td>02</td>
</tr>
<tr>
<td></td>
<td>VI</td>
<td>VI</td>
<td>Plant Ecology &amp; Phytogeography</td>
<td>100</td>
<td>03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Practical –VI</td>
<td>50</td>
<td>02</td>
</tr>
<tr>
<td></td>
<td>VII A*</td>
<td></td>
<td>Elective</td>
<td>100</td>
<td>03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lab</td>
<td>50</td>
<td>02</td>
</tr>
<tr>
<td></td>
<td>VII B*</td>
<td></td>
<td>Elective</td>
<td>100</td>
<td>03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lab</td>
<td>50</td>
<td>02</td>
</tr>
<tr>
<td></td>
<td>VII C*</td>
<td></td>
<td>Elective</td>
<td>100</td>
<td>03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lab</td>
<td>50</td>
<td>02</td>
</tr>
<tr>
<td></td>
<td>VIII (I)**</td>
<td>Cluster Elective-I</td>
<td>100</td>
<td>03</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
<td>03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
<td>03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>02</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>02</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>02</td>
</tr>
<tr>
<td></td>
<td>VIII (II)**</td>
<td>Cluster Elective-II</td>
<td>100</td>
<td>03</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
<td>03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>02</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>02</td>
</tr>
</tbody>
</table>

*Any one paper from A, B and C can be selected

**Any one cluster from I or II can be selected

***III year Syllabi will be sent shortly
Andhra Pradesh State Council of Higher Education

I B.Sc - SEMESTER- I: BOTANY SYLLABUS
w.e.f. 2015-16 (Revised in April, 2016)
Paper-DSC IA : 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- Archaeabacteria, 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 diseases caused by viruses – Symptoms, transmission and control measures
   (Brief account only).

UNIT III: BACTERIA (12hrs)
1. Bacteria: Discovery, General characteristics, cell structure and nutrition.
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:

**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-DSC IA: Microbial Diversity, Algae and Fungi
Total hours of laboratory Exercises 30 hrs @ 2 per week

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).
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 material infected by Fungi (Rot of tomatoes, blue and green moulds of Citrus 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.

-------------------------------------------------------------
------------------------------------------
B.Sc - SEMESTER –I
BOTANY PRACTICAL PAPER –I

Paper-1 P: Microbial Diversity, Algae and Fungi

Time: 3hrs.                       Max. Marks: 50

1. Identify giving reasons two of the given Algal mixture” A”. Leave your preparation for evaluation.
   Draw labeled diagrams. (Slide--1mark, Diagrams--1mark, Identification--1mark)
   
   3x 2 = 6 Marks

2. Make suitable stained preparation of the material "B" to bring out the details of internal structure--
   identify giving reasons. Draw labeled diagrams and leave your preparations for evaluation.
   (Slide-4 marks, diagrams-3 marks, Identification-3marks)

   10 Marks

3. Perform Gram staining of the given Bacterial culture

   9 Marks

4. Write critical notes and Identify D, E, F, G and H

   (5X3)= 15 Marks

5. Record(submission is compulsory)

   10 Marks

----------------------------------------
Total:                           50 Marks
----------------------------------------

Key:
A. Algal material
B. Fungi material
C. Bacterial culture
D. One of the instruments of Micro biology laboratory.
E. Whole specimen or a permanent slide of Algae.
F. Whole specimen or a permanent slide of Fungi.
G. Whole specimen or a permanent slide of Plant disease studied.
H. Whole specimen or a permanent slide of Lichens.
I B. Sc - SEMESTER- II: BOTANY THEORY SYLLABUS
Paper –DSC IB : Diversity of Archaegoniates & Plant Anatomy
Total hours of teaching 60hrs @ 4 hrs per week

UNIT – I: BRYOPHICTES

1. Bryophytes: General characters, Classification (up to classes)
2. Structure, reproduction and Life history of Marchantia, and Funaria.
3. Evolution of Sporophyte in Bryophytes.

UNIT - II: PTERIDOPHICTES

1. Pteridophytes: General characters, classification (up to Classes)
2. Structure, reproduction and life history of Lycopodium, and Marsilea.
3. Heterospory and seed habit.
4. Evolution of stele in Pteridophytes.

UNIT – III: GYMNOSPERMS

1. Gymnosperms: General characters, classification (up to classes)
2. Morphology, anatomy, reproduction and life history of Pinus and Gnetum
3. Economic importance with reference to wood, essential oils and drugs

UNIT –IV: Tissues and Tissue systems

1. Meristems - Root and Shoot apical meristems and their histological organization.
2. Tissues – Meristematic and permanent tissues (simple, complex, secretory)
3. Tissue systems–Epidermal, ground and vascular.

UNIT – V. Secondary growth

1. Anomalous secondary growth in Achyranthes, Boerhaavia and Dracaena.
2. Study of local timbers of economic importance - Teak, Rosewood, Red sanders and Arjun (Tella maddi).

Suggested activity: Collection of Marsilea sporocarp, Pinus needles, male and female cones, study of Pinus pollen grains, collection of locally available economically useful timbers.
Books for Reference:

1. Cavers, Frank ( ): The inter-relationships of the Bryophytes  
   New Phytologist, Indian Reprint.


   Central Book Depot, Allahabad.


   McGraw Hill, N.Y.

   Central Book Depot., Allahabad.


   Ferns and Allied Plants) Hutchinson University Library, London


    Central Book Depot, Allahabad.

    Evolution of Primitive seed Plants) Hutchinson University Library, London.


I B.Sc SEMESTER -II
BOTANY PRACTICAL SYLLABUS
Paper-DSC IB: Diversity of Archaeogniates & 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.
I B.Sc., SEMESTER –II: BOTANY PRACTICAL MODEL PAPER II

II P: Diversity of Archaeogniates & plant Anatomy

1. Section cutting of material - A
   (Slide 3 marks, diagrams-3 marks, Identification-3 marks) 9 Marks

2. Section cutting of material - B
   (Slide 3 marks, diagrams-3 marks, Identification-3 marks) 9 Marks

3. Section cutting of material - C
   (Slide 4 marks, diagrams-3 marks, Identification-3 marks) 10 Marks

4. Identification of spotters - D, E, and F
   3x4 = 12 marks

5. Record (submission compulsory)
   10 marks

----------------------
Total : 50 Marks
----------------------

Key:
A. Bryophyta/ Pteridophyta material
B. Gymnosperm material.
C. Anatomy material.
D. Whole specimen or permanent slide of Bryophyta/ Pteridophyta
E. Whole specimen or permanent slide of Gymnosperm.
F. Whole specimen or permanent slide of wood.
II B. Sc - SEMESTER –III: BOTANY THEORY PAPER –III  
(Paper-DSC IIA : Plant Taxonomy and Embryology) 
Total hours of teaching 60hrs @ 4 hrs per week

UNIT – I: INTRODUCTION TO PLANT TAXONOMY  
(12hrs) 
1. Fundamental components of taxonomy (identification, nomenclature, classification)  
2. Taxonomic resources: Herbarium- functions& important herbaria, Botanical gardens, Flora, Keys- single access and multi-access.  
3. Botanical Nomenclature- Principles and rules of ICBN (ranks and names; principle of priority, binomial system; type method, author citation, valid-publication).

UNIT – II: CLASSIFICATION  
(12 hrs)  
1. Types of classification- Artificial, Natural and Phylogenetic.  
2. Bentham & Hooker’s system of classification- merits and demerits.  
3. Engler & Prantle’s system of classification- merits and demerits  
4. Phylogeny – origin and evolution of Angiosperms

UNIT –III: SYSTEMATIC TAXONOMY-I  
(12hrs)  
1. Systematic study and economic importance of the following families:  
   Annonaceae, Brassicaceae, Rutaceae, Curcurbitaceae, and Apiaceae.

UNIT –IV: SYSTEMATIC TAXONOMY-II  
(12hrs)  
1. Systematic study and economic importance of plants belonging to the following families: Asteraceae, Asclepiadaceae, Lamiaceae, Ephorbiaceae,Arecaceae,and Poaceae.

UNIT – V: EMBRYOLOGY  
(12hrs)  
1. Anther structure, microsporogenesis and development of male gametophyte.  
2. Ovule structure and types; Megasporogenesis, development of Monosporic, Bisporic and Tetrasporic types (Peperomia,Drusa, Adoxa) of embryo sacs.  
3. Pollination and Fertilization (out lines) Endosperm development and types.  
**Suggested activity**: Collection of locally available plants of medicinal importance, observing pollen grains in honey, Aero palynology-collection of pollen from air using glycerin strips in different seasons.

**Books for Reference:**

II B.Sc - SEMESTER-III
BOTANY PRACTICAL – DSC IIA
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).
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.
II B.Sc., BOTANY - SEMESTER -III
PRACTICAL MODEL PAPER III  Plant Taxonomy and Embryology

   2x 10 = 20 Marks
   (Description- vegetative - 2 marks, floral – 4 marks; diagrams-3 marks, Identification-1 marks)

2. Derive the plant specimens C & D to their respective families-  2x4 = 08 marks

3. Identification of spotters -D, E ,and F (Embryology )  3x4 =12 marks

4. Record & Herbarium (submission compulsory)  10 marks

----------------------
Total : 50 Marks
----------------------
II B. Sc - SEMESTER- IV THEORY: BOTANY SYLLABUS
PAPER – DSC IIB: Plant Physiology and Metabolism
Total hours of teaching 60hrs @ 4 hrs per week

UNIT – I: Plant – Water relations (12 hrs)
1. Physical properties of water, Importance of water to plant life.
2. Diffusion, imbibition and osmosis; concept & components of Water potential.
3. Absorption and transport of water and ascent of sap.
4. Transpiration –Definition, types of transpiration, structure and opening and closing mechanism of stomata.

UNIT –II: Mineral nutrition & Enzymes (12hrs)
1. Mineral Nutrition: Essential elements (macro and micronutrients) and their role in plant metabolism, deficiency symptoms.
2. Mineral ion uptake (active and passive transport).
4. Enzymes: General characteristics, mechanism of enzyme action and factors regulating enzyme action.

UNIT –III: PHOTOSYNTHESIS (12 hrs)
1. Photosynthesis: Photosynthetic pigments, photosynthetic light reactions, photophosphorylation, carbon assimilation pathways: C3, C4, and CAM (brief account)
2. Photorespiration and its significance.

UNIT – IV: PLANT METABOLISM (12 hrs)
1. Respiration: Glycolysis, anaerobic respiration, TCA cycle, electron transport system. Mechanism of oxidative phosphorylation.
2. Lipid Metabolism: Types of lipids, Beta-oxidation.

UNIT –V: GROWTH AND DEVELOPMENT (12hrs)
1. Growth and development: definition, phases and kinetics of growth.
2. Physiological effects of phytohormones - Auxins, Gibberellins, Cytokinins, ABA, Ethylene and Brassinosteroids.
3. Physiology of flowering -photoperiodism, role of phytochrome in flowering; Vernalization.
4. Physiology of Senescence and Ageing.
**Suggested activity**: Seminars, Quiz, Debate, Question and Answer sessions, observing animations of protein biosynthesis in you tube.

**Books for Reference:**

II B. Sc SEMESTRE- IV. – BOTANY  PRACTICAL SYLLABUS
PAPER- DSC IIB - Plant Physiology and Metabolism
Total hours of laboratory Exercises 30 hrs @ 2 per week

Suggested Laboratory Exercises:

1. Osmosis – by potato osmoscope experiment
2. Determination of osmotic potential of plant cell sap by plasmolytic method using leaves of *Rhoeo* / *Tradescantia*.
3. Structure of stomata (dicot & monocot)
4. Determination of rate of transpiration using cobalt chloride method.
5. Demonstration of transpiration by Ganongs’ photometer
6. Demonstration of ascent of sap/Transpiration pull.
6. Effect of Temperature on membrane permeability by colorimetric method.
7. Study of mineral deficiency symptoms using plant material/photographs.
9. Rate of photosynthesis under varying CO<sub>2</sub> concentrations.
II B. Sc – SEMESTRE- IV. BOTANY PRACTICAL MODEL PAPER
(PAPER- IV - Plant Physiology and Metabolism)

1. Perform the Experiments A & B. Give the aim, principle, procedure and observation. Tabulate the results if any. Draw labeled diagram. 2 x 15 = 30 marks

2. Give the protocol of the experiments C & D 2 x 5 = 10 marks

3. Record & Viva 10 marks

----------------------------------
50 marks
A.P. State Council of Higher Education  
**Revised Common Framework of CBCS for Colleges in Andhra Pradesh**  
w.e.f. 2015-16, Revised in April, 2016

Table-7: B.Sc., SEMESTER – I

<table>
<thead>
<tr>
<th>Sno</th>
<th>Course</th>
<th>Total Marks</th>
<th>Mid Sem Exam*</th>
<th>Sem End Exam</th>
<th>Teaching Hours</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>First Language (Tel/Hin/Urdu/Sans...)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Second Language English</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Foundation Course - 1 Human Values &amp; Professional Ethics</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Foundation Course - 2 Environmental Studies</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>DSC-1 Paper-1 (Core)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>DSC 1 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>DSC 2 Paper-1 (Core)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>DSC 2 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>DSC 3 Paper-1 (Core)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>DSC 3 A Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>750</strong></td>
<td><strong>-</strong></td>
<td><strong>-</strong></td>
<td><strong>30</strong></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>

#DSC: Domain (Subject) Specific Course (Paper)  
Foundation Course: value or skill based  
Note: For Science Domain Subjects which had no lab practical component earlier (eg. Mathematics) the following format is applicable. They, however, will have co-curricular activities (eg. Problem solving sessions etc.). The total marks will change accordingly for such combinations. For example for Maths, Physics and Chemistry the total marks will be 700.

| DSC (without Lab Practical) | 100 | 25 | 75 | 6 | 5 |

*Mid sem exam at the college (The marks split between Formal Test and Co-curricular activities may be decided by the University concerned). End Sem Exam by the Univ.*  
*Practical component will not be applicable to those science subjects which had no such component earlier (ex. Mathematics)*  
**Syllabus size shall be in accordance with the number of teaching hours**
# Table-8: B.Sc., SEMESTER – II

<table>
<thead>
<tr>
<th>Sno</th>
<th>Course</th>
<th>Total Marks</th>
<th>Mid Sem Exam</th>
<th>Sem End Exam</th>
<th>Teaching Hours</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>First Language (Tel/Hin/Urdu/Sans…)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Second Language English</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Foundation course – 3 ICT – I</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Foundation course – 4 CSS – I</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>DSC 1 Paper-2 (Core)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>DSC 1 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>DSC 2 Paper-2 (Core)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>DSC 2 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>DSC 3 Paper-2 (Core)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>DSC 3 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>750</strong></td>
<td><strong>-</strong></td>
<td><strong>-</strong></td>
<td><strong>30</strong></td>
<td><strong>25</strong></td>
</tr>
</tbody>
</table>
## B.Sc. Table-9: B.Sc., SEMESTER – III

### SEMESTER – III

<table>
<thead>
<tr>
<th>Sno</th>
<th>Course</th>
<th>Total Marks</th>
<th>Mid Sem Exam</th>
<th>Sem End Exam</th>
<th>Teaching Hours</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>First Language (Tel/Hin/Urdu/Sans…)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Second Language English</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Foundation Course - 5 ICT – II</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Foundation course – 6 CSS – II</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>DSC 1 Paper-3 (Core)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>DSC 1 Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>DSC 2 Paper-3 (Core)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>DSC 2 Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>DSC 3 Paper-3 (Core)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>DSC 3 Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>750</td>
<td>-</td>
<td>-</td>
<td>30</td>
<td>25</td>
</tr>
</tbody>
</table>
### Table-10: B.Sc., SEMESTER – IV

#### SEMESTER – IV

<table>
<thead>
<tr>
<th>Sno</th>
<th>Course</th>
<th>Total Marks</th>
<th>Mid Sem Exam*</th>
<th>Sem End Exam</th>
<th>Teaching Hours**</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Foundation Course – 7 CSS – 2</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Foundation Course – 8 Analytical Skills</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Foundation Course - 9 Entrepreneurship</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Foundation course – 10 Leadership Education</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>DSC 1 Paper-4 (Core)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>DSC 1 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>DSC 2 Paper-4 (Core)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>DSC 2 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>DSC 3 Paper-4 (Core)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>DSC 3 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>750</td>
<td>-</td>
<td>-</td>
<td>30</td>
<td>23</td>
</tr>
</tbody>
</table>

*Analytical Skills: To be taught by Maths/Stat Teachers (may be partly by English Teachers)
Entrepreneurship: To be taught by Commerce Teachers
Leadership Education: To be taught by Telugu Teachers
### Table-11: B.Sc., SEMESTER – V

<table>
<thead>
<tr>
<th>Sno</th>
<th>Course</th>
<th>Total Marks</th>
<th>Mid Sem Exam</th>
<th>Sem End Exam</th>
<th>Teaching Hours</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DSC 1 Paper-5 (Core)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>DSC 1 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>DSC 2 Paper-5 (Core)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>DSC 2 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>DSC 3 Paper-5 (Core)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>DSC 3 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>DSC 1 Paper-6 (Core)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>DSC 1 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>DSC 2 Paper-6 (Core)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>DSC 2 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>DSC 3 Paper-6 (Core)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>DSC 3 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>900</td>
<td>-</td>
<td>-</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>
**Table-12: B.Sc., SEMESTER – VI**

<table>
<thead>
<tr>
<th>Sno</th>
<th>Course</th>
<th>Total Marks</th>
<th>Mid Sem Exam</th>
<th>Sem End Exam</th>
<th>Teaching Hours</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Elective 1: DSC 1, Paper -7 (applied/adv)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Elective-1 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Elective-1: DSC 2, Paper -7 (applied/adv)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Elective-2 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Elective-1: DSC 3, Paper -7 (applied/adv)</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>Elective-3 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>Elective -2: DSC 1, Paper -8 App/Inter-domain/Gen El</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>Elective-2 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>Elective -2: DSC 2, Paper -8 App/Inter-domain/Gen El</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>Elective-2 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>Elective -2: DSC 3, Paper -8 App/Inter-domain/Gen El</td>
<td>100</td>
<td>25</td>
<td>75</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>Elective-2 Lab Practical</td>
<td>50</td>
<td>0</td>
<td>50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>900</td>
<td>-</td>
<td>-</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

*7th paper of each of the domain specific subjects (1st paper of semester VI) will be a domain related Elective. More than one Elective may be offered giving choice to students. The Electives may be of Domain specific applied or advanced (specialization) in nature. The number of Electives may be decided (along with the syllabus) by the University concerned keeping the feasibility of conduct of University examinations in view.

** Applied Elective: It is desirable that around 25% of syllabus is taught by field experts. The college has to make such an arrangement.

*8th paper of each of the domain specific subjects (2nd paper of semester VI) will also be an Elective. The Electives may be of Inter-domain Clusters** - each Cluster having three papers with or without project work, or General in nature. The number of Clusters may be decided (along with the syllabus) by the University
concerned keeping the feasibility of conduct of University examinations in view. It is desirable that around 25% of syllabus is taught by field experts.

**Cluster:** In the last semester, for paper-8, each domain subject has one elective totaling three papers for each student. Electives may be given as Clusters of three papers each for each subject. A student can opt for all the three papers of the same subject (cluster or stream) including or excluding project work for a wider learning experience. The student will not study the other two domain subjects for paper-8.

**Total Credits for a B.Sc. Course: 158**