CURRICULUM

Department: Biotechnoloy

a) Copy of Curriculum

MODIFIED SYLLABUS FOR B.Sc. BIOTECHNOLOGY
CBCS SEMESTER PATTERN
(For affiliated colleges with effect from 2018-19)
CBCS – B.Sc. Degree Course in Biotechnology
First Year - Semester-1

PART	S.No.	Subjects	Hours	Credits	Int	Ext	Total
I	1	Part-I	6	3	25	75	100
II	2	Part II	6	3	25	75	100
III	3	Core-1: **General Biochemistry**	4	4	25	75	100
		Core-3: Major Practical-1 (Lab in Analytical Biochemistry and Microbiology)	2	-			
	4	Allied-1: **Organic, Inorganic and Physical chemistry -1**	4	4	25	75	100
		Allied Practical: Volumetric Analysis	2	-			
IV	5	Skill -1: **Basics of Computer application & Bioinformatics**	2	2	25	75	100
	6	Skill-2: **Natural Products (Secondary metabolites**)	2	2	25	75	100
	7	Non Major Elective – 1	2	2	25	75	100
Total			30	20			700

First Year - Semester-II

PART	S.No.	Subjects	Hours	Credits	Int	Ext	Total
I	1	Part-I	6	3	25	75	100
II	2	Part II	6	3	25	75	100
III	3	Core-2: **Fundamentals of Microbiology**	4	4	25	75	100
	4	Core-3: Major Practical-1 (Lab in Analytical Biochemistry and Microbiology)	2	2	25	75	100
	5	Allied-1: **Organic and Physical chemistry -1**	4	4	25	75	100
	6	Allied 1 Practical-1: **Volumetric Analysis**	2	1	25	75	100

IV	7	Skill -3: **Tissue Culture techniques**	2	2	25	75	100
	8	Skill-4: **Food Technology**	2	2	25	75	100
	9	Non Major Elective – 2:	2	2	25	75	100
Total			30	23			900

Second Year - Semester-III

PART	S.No.	Subjects	Hours	Credits	Int	Ext	Total
I	1	Part-I	6	3	25	75	100
II	2	Part II	6	3	25	75	100
III	3	Core-4: **Molecular Genetics**	4	4	25	75	100
		Core-6: Major Practical-2 (Lab in Molecular Genetics and Immunology & Immunotechnology)	2	-			
	4	Allied-1: **Organic, Inorganic and Physical chemistry -2**	4	4	25	75	100
		Allied 1 Practical-2: Organic analysis	2				
	5	Allied -2: **General Biology**	4	4	25	75	100
		Allied -2 Biology Practical-1	2				
Total			30	18			500

Second Year - Semester-IV

PART	S.No.	Subjects	Hours	Credits	Int	Ext	Total
I	1	Part-I	6	3	25	75	100
II	2	Part II	6	3	25	75	100
III	3	Core-5: **Immunology & Immunotechnology**	4	4	25	75	100
	4	Core-6: **Major Practical-2** (Lab in Molecular Genetics and Immunology & Immunotechnology)	2	2	25	75	100
	5	Allied-1: **Organic and Physical chemistry -1**	4	4	25	75	100
	6	Allied 1 Practical-2: **Organic analysis**	2	1	25	75	100
	7	Allied -2: **Basic and Applied Ecology**	4	4	25	75	100
	8	Allied -2 Biology Practical-1	2	1	25	75	100
V	9	Extensions activities	0	1			-
Total			30	23			800

Third Year - Semester-V

PART	S.No.	Subjects	Hours	Credits	Int	Ext	Total
III	1	Core-7: **Recombinant DNA Technology**	4	4	25	75	100
	2	Core-8: **Animal Biotechnology**	4	4	25	75	100
	3	Core-9: **Microbial Biotechnology**	4	4	25	75	100
		Core-10: Major Practical-3 [Recombinant DNA Technology and Genomics & Proteomics]	3				
		Core-11: Major practical-4 [Animal Biotechnology and Plant Molecular Biology]	3				
		Core-12: Major Practical-5 [Microbial Biotechnology and Evolutionary biology]	2				
	4	Allied-2: **Biodiversity and Conservation**	4	4	25	75	100
		Allied 2 Biology Practical 2	2				
	5	Skill -5: **Advanced Biotechnology**	2	2	25	75	100
IV	6	**Environmental Studies**	2	2	25	75	100
Total			30	20			600

Third Year - Semester-VI

PART	S.No.	Subjects	Hours	Credits	Int	Ext	Total
III	1	Core-13: **Genomics & Proteomics**	4	4	25	75	100
	2	Core-14: **Plant Molecular Biology & Biotechnology**	4	4	25	75	100
	3	Core-15: : **Evolutionary Biology & Biostatistics**	4	4	25	75	100
	4	Core-10: **Major Practical-3** [Recombinant DNA Technology and Genomics & Proteomics]	3	5	25	75	100
	5	Core-11: **Major practical-4** [Animal Biotechnology and Plant Molecular Biology& Biotechnology]	3	5	25	75	100
	6	Core-12: **Major Practical-5** [Microbial Biotechnology, Evolutionary biology and Biostatistics]	2	5	25	75	100
	7	Allied-2: **Cell Biology**	4	4	25	75	100
	8	Allied 2 Biology Practical- 2	2	1	25	75	100
	9	Skill -6: **Bioethics, Biosafety and IPR**	2	2	25	75	100

IV	10	**Value Education**	2	2	25	75	100
Total			30	36	25	75	100

b) List of the practical experiments in the curriculum actually done by the students and practical demonstrated.

LIST OF PRACTICALS FOR B.Sc., BIOTECHNOLOGY COURSE

Major Practical-1 -Lab in Analytical Biochemistry and Microbiology

Analytical Biochemistry (For odd semester)

1. Colorimeter and spectrophotometer (principle & use)
2. Estimation of proteins
3. Estimation of aminoacids
4. Estimation of glucose (Dinitrosalicylic acid method)
5. pH meter – principles and applications
6. Preparation of phosphate and acetate buffers.
7. Enzyme assay (Invertase & amylase)
8. Chromatography method – Principles and applications
9. Paper chromatography, Thin-Layer chromatography.

Microbiology(For even semester)

1. Microbiological techniques – Sterilization techniques, Media preparation
2. Isolation and enumeration of microbes (bacteria & fungi) from soil.
3. Single colony preparation – streak plte methods
4. Identification of Bacteria: Staining methods – simple, Grams and Spore staining; Biochemical Identification – IMViC – test, Oxidase, Catalase, TSI –test, Hydrolysis of starch, casein, and lipids.
5. Growth curve of bacteria.
6. Antimicrobial sensitivity test – Disk diffusion test.
7. Preservation of microbes: slant culture, Mineral oil stocks
8. Fungal identification: Slide culture method & lactophenol cotton blue staining (morphology)

Major practical II- LAB IN MOLECULAR GENETICS & IMMUNOLOGY

Molecular Genetics(For odd semester)

1. Protein characterization: isolation, purification by Ammonium salt precipitation, dialysis, ion-exchange chromatography
2. Drosophila – male and female identification, Mutant forms (from pictures),Genetic importance
3. Observation of simple Mendelian traits in man.
4. Human Karyotypes : normal, Down's, Klinefelters and Turner, is syndrome.
5. Recording of Mendelian traits in humans.
6. Isolation of genomic DNA from Bacteria and plants
7. Agarose gel electrophoresis

8. Isolation of Plasmid DNA
9. Demonstration of Conjugation, transformation and Transduction
10. Ames test
11. Bacteriophage isolation & enumeration.
12. Demonstration of Lytic & lysogenic phages.

Immunology(For Even semester)

1. Properties of antigen and antibody
2. ABO blood grouping
3. RH factor determination
4. Widal test, Syphilis Fast Latex Agglutination Test
5. Immune precipitation test: single radial immunodiffusion, Double immune diffusion
6. Immune electrophoresis.
7. Make a differential count and subset population in lymphocyte (B & T lymphocytes)
8. Total RBC and WBC count
9. ELISA test

Major practical III -Lab in Recombinant DNA Technology and Genomics & Proteomics

Recombinant DNA Technology (For odd semester)

1. Isolation of plasmid DNA from Bacteria
2. Analysis of plasmid DNA in Agarose Gel electrophoresis
3. Isolation of DNA from animal tissues.
4. Restriction fragment analysis of DNA
5. Preparation of Competent cells
6. Simple DNA ligation and transformation experiments.
7. Recombinant selection (Blue – white Screening), antibiotic selection
8. Polymerase Chain Reaction
9. Demonstration of Southern Hybridization, Synthesis of cDNA.

Genomics & Proteomics(For even semester)

1. DNA isolation from blood/liver and electrophoresis
2. Estimation of cellular DNA by standard method (Burton's)
3. Studies on Serum proteins by electrophoresis
4. Native PAGE, 2-D electrophoresis.
5. Two dimensional liquid chromatography
6. DNA data bases searching – BLAST analysis & Phylogenetic analysis of microbes & plants
7. Protein data bases – Protein primary sequence analysis, homology analysis and secondary structure prediction.

8. Pairwise alignment of Protein and DNA sequences & data interpretation.
9. Local and global alignment of sequence data and comparing both results.

Major practical IV- Lab in Animal Biotechnology and Plant Molecular Biology

Animal Biotechnology(For odd semester)

1. Basic laboratory practical in animal cell culture, introduction, sterilization and washing of glassware media preparation
2. Preparation of chick embryo 24 hrs, 48 hrs, 72 hrs and 96 hrs cell viability testing using Trypan blue
3. Primary and sub culturing techniques.
4. Handling of lab animals (mice)
5. Preparation of antigens: erythrocytes, bacterial proteins
6. Immunization and bleeding techniques

Plant Molecular Biology & Biotechnology(For even semster)

1. Basic laboratory practical in plant tissue culture, introduction, sterilization and washing of glassware media preparation
2. Multiplication plan for in vitro plantlets for greenhouses
3. Tissue culture techniques
4. Micropropagation (node cuttings, leaflets)
5. Germplasm maintenance.
6. Mitosis and meiosis analysis
7. Tissue typing

Major practical V- Lab in Microbial Biotechnology, Evolutionary biology and Biostatistics

Microbial Biotechnology(For odd semester)

1. Maintenance of pure cultures of industrially important microbes
2. Fermentor, Production media - Principles & applications
3. Screening of Extracellular enzyme producing microbes (amylase & protease) & assay of enzyme
4. Screening of antibiotic producing microbes from soil.
5. Alcohol fermentation by yeast, and quantification of ethanol.
6. Citric acid fermentation by *Aspergillus niger* and quantification.
7. Microbial fermentation of curd.

Evolutionary Biology & Biostatistics (For even semester)

1. Biometry analysis: Rationale, collection of data, statistical analysis, and interpretation.
2. Population Genetics: Techniques, genotype analysis, heterozygosity, polymorphism.
3. Natural Selection: Experiments that simulate the effects of natural selection and adaptation in changing environments.
4. Phylogeny Reconstruction: Application of phenetic and cladistic methods to a group of mock "organisms."
5. The Evolution of *Homo sapiens:* Discussion of human origins and our relationship to the evolutionary process
6. Data collection – processing – dendrogram, bar diagram
7. ONEWAY ANOVA test
8. Student-t test
9. Chi square test to prove Null hypothesis.

ANCILLARY BIOLOGY LAB –I:

Lab in Ancillary Biology I

Botany

1. Identify the Vegetative structure and reproductive structure in Sargassam
2. Identify the Vegetative structure and reproductive structure in Yeast
3. Identify the Vegetative structure and reproductive structure in Funaria
4. Identify the Vegetative structure and reproductive structure in Selaginella
5. Identify the Vegetative structure and reproductive structure in Pinus
6. Dissect the section cutting of Sargassam
7. Dissect the section cutting of selaginella
8. Dissect the section cutting of pinus stem
9. Dissect the section cutting of pinus needle
10. Dissect the monocot flower and identify parts
11. Dissect the dicot flower and identify parts

Zoology

1. Write the parts and functions of cockroach external
2. Write the parts and functions of cockroach digestive system
3. Write the parts and functions of cockroach reproductive system

4. Write the parts and functions of frog external
5. Write the parts and functions of frog digestive system
6. Write the parts and functions of frog urogenital system
7. Identify and write the morphology of given spotter amoeba
8. Identify and write the morphology of given spotter euglena
9. Identify and write the morphology of given spotter hydra
10. Identify and write the morphology of given spotter planaria
11. Identify and write the morphology of given spotter liver fluke
12. Identify and write the morphology of given spotter Tania solium
13. Identify and write the morphology of given spotter ascaris
14. Identify and write the morphology of given spotter earthworm
15. Identify and write the morphology of given spotter prawn
16. Identify and write the morphology of given spotter pila
17. Identify and write the morphology of given spotter starfish
18. Identify and write the morphology of given spotter shark
19. Identify and write the morphology of given spotter calotes
20. Identify and write the morphology of given spotter pigeon
21. Identify and write the morphology of given spotterat
22. Write a comment on blood cells of man
23. Write a comment on different types of muscles.

Ecology

1. Study of vegetation by quadrat method
2. Write the procedure and estimate the dissolved oxygen content in different samples
3. Write the procedure and estimate the salinity content in different samples
4. Write the procedure and estimate the alkalinity content in different samples
5. Estimate the level of pH present in soil

6. Estimate the alkalinity present in soil
7. Estimate the presence of nitrates in soil
8. Estimate the amount of phosphates in soil
9. To study the plant adaptation Hydrophytic adaptation-eichhornia,utricularia,nymphea
10. To study the plant adaptation xerophytic adaptation-opuntia,casuarina
11. To study the animal adaptation such as chameleon, stick insect, leaf insect, industrial melanism

ANCILLARY BIOLOGY –II:

Biodiversity and Conservation (For odd semester)

1. By using world and Indian map mark Biodiversitically important region countries and centers.

2. Measuring Biodiversity – Quardrat method using various indices and calculate dominance and evenness.

3.collection of endemic plants and animal photos with information by using websites, Journals and Newspapers.

Cell biology (For Even semester)

1. Parts and Functions of compound Microscope.

2. Study of cell inclusions: Starch grains – smear of potato, Banana and Rice, *Cystolits* – Sections of *Fucus leaves, Sclereids* – Sections of pothos leaves, petrioles of *Aracase plants.*

3.Study of Cell organelles by photomicrographs.

4. Study of Mitosis by smear technique using *Allium cepa* roots.

5.Study of Mitosis by using *Rhoco* flower buds.

6.Histochemical staining techniques ass given in the theory syllabus.

a)Protein staining

b)Lipid staining

Ancillary chemistry lab- 1- Lab in Volumetric Analysis:

1.Estimation of Hydrochloric acid

2. Estimation of Sodium carbonate

3. Estimation of Oxalic acid

4. Estimation of Sodium hydroxide

5. Estimation of Ferrous ammonium sulphate

6. Estimation of Ferrous sulphate

7. Estimation of Oxalic acid (Redox titration)

8. Estimation of Potassium di chromate

9. Estimation of Potassium permanganate

10. Estimation of Copper sulphate.

Ancillary chemistry lab- II- Lab in Organic analysis

1. Analysis of Carboxylic acid (Saturated)

2. Analysis of Carbohydrate

3. Analysis of Phenol

4. Analysis of Aldehydes

5. Analysis of Esters

6. Analysis of Amines

7. Analysis of Amides

8. Analysis of Diamides

9. Analysis of Acids (UnSaturated)

10. Analysis of Ketones

c) When was the last exercise for curriculum revision undertaken?

Last exercise for curriculum revision was undertaken in the Academic Year of 2018-2019 onwards.

d) Specialization of the course – Biotechnology and Bioinformatics

- Excellent opportunity to learn new technologies like isolation of DNA,RNA and Proteins etc.
- Demand for Biotechnology students with handling.
- Placement Opportunities in various fields.
- Admirable opportunities in research areas.

Department: Physics

a) Copy of Curriculum

MODIFIED SYLLABUS FOR B.Sc. PHYSICS
CBCS SEMESTER PATTERN
(For affiliated colleges with effect from 2018-19)

B.Sc Semester - I

Part	Study Component	No. of Course	Credits	Hours
I	Tamil / Other languages	**1**	**3**	**6**
II	English	**1**	**3**	**6**
III	Core Subject - 1	**1**	**4**	**4 + 2 (P)**
	Allied Subject – I- 1	**1**	**4**	**6**
IV	Skill Based Subject 1 & 2	**2**	**2 + 2**	**2 + 2**
	Non Major Elective 1	**1**	**2**	**2**
Total		**7**	**20**	**30**

B.Sc Semester - II

Part	Study Component	No. of Course	Credits	Hours
I	Tamil / Other languages	**1**	**3**	**6**
II	English	**1**	**3**	**6**
III	Core Subject - 2	**2**	**4 + 3***	**4 + 2 (P)***
	Allied Subject – I- 2	**1**	**5**	**6**
IV	Skill Based Subject 3 & 4	**2**	**2 + 2**	**2 + 2**
	Non Major Elective 2	**1**	**2**	**2**
Total		**8**	**24**	**30**

*** Major Practical - I**

B.Sc Semester - III

Part	Study Component	No. of Course	Credits	Hours
I	Tamil / Other languages	**1**	**3**	**6**
II	English	**1**	**3**	**6**
III	Core Subject - 3	**1**	**4**	**4 + 2 (P)**
	Allied Subject – I- 3	**1**	**4**	**6**
	Allied Subject – II- 1	**1**	**4**	**4 + 2 (P)**
Total		**5**	**18**	**30**

B.Sc Semester - IV

Part	Study Component	No. of Course	Credits	Hours
I	Tamil / Other languages	**1**	**3**	**6**
II	English	**1**	**3**	**6**
III	Core Subject - 4	**2**	**4 + 3**	**4 + 2 (P)***
	Allied Subject – I- 4	**1**	**5**	**6**
	Allied Subject – II- 2	**2**	**4 + 1**	**4 + 2 (P)***
	Extension activities	**1**	**1**	
Total		**8**	**24**	**30**

* Major Practical – II
* Ancillary Practical -2 - 1

B.Sc Semester - V

Part	Study Component	No. of Course	Credits	Hours
III	Core Subject - 5, 6 and 7	**3**	**12**	**12 + 8 (P)**
	Allied Subject – II- 3	**1**	**4**	**4 + 2 (P)**
IV	Skill Based Subject 5	**1**	**2**	**2**
	Environmental Studies	**1**	**1**	**2**
Total		**6**	**19**	**30**

B.Sc Semester - VI

Part	Study Component	No. of Course	Credits	Hours
III	Core Subject - 8, 9 and 10	**3**	**12 + 15***	**12 + 8 (P)**
	Allied Subject – II- 4	**1**	**4 + 1**	**4 + 2 (P)**
IV	Skill Based Subject 6	**1**	**2**	**2**
	Value Education	**1**	**1**	**2**
Total		**6**	**35**	**30**

* Major Practical – III, IV & V
* Ancillary Practical -2 - 2

b) List of Practical Experiments in the curriculum actually done by the students and practical demonstrator

List of Experiments:

SEMESTER I & II **PHYSICS PRACTICALS – I** **CREDIT -3**

1. Young's Modulus - Uniform bending – Pin & Microscope
2. Young's Modulus - Non uniform bending – Scale & Telescope
3. Young's Modulus - Cantilever – Pin & Microsscope
4. Young's Modulus - Cantilever – Dynamic method
5. Rigidity Modulus - Static torsion – Searles method
6. Rigidity Modulus - Torsion pendulum
7. Moment of Inertia - Torsion pendulum
8. A.C Frequency - Sonometer
9. Verification of laws - Sonometer
10. Frequency of tuning fork- Sonometer
11. Frequency of vibrator - Meldes apparatus
12. Velocity of sound - Kundts tube
13. Compound pendulum - 'g'
14. Thermal conductivity of bad conductor - Lee's disc
15. Viscosity of liquid - Stroke's method
16. Viscosity of liquid - Burette method
17. Surface tension - Capillary rise
18. Surface tension - Drop weight method

SEMESTER III & IV **PHYSICS PRACTICALS – II** **CREDIT -3**

1. Refractive Index - Specctrometer A and D
2. Grating - Spectrometer N and λ
3. Air wedge - Thickness of wire
4. Newtons Rings - Radius and wavelength measurements
5. Carey Foster Bridge - Resistance and specific resistance
6. Carey Foster Bridge - Temperature coefficient
7. Potentiometer - Calibration of low range voltmeter
8. Potentiometer - Calibration of ammeter
9. Potentiometer - Comparisonn of EMF's
10. Determination of B_H - Axial coil
11. Determination of M - Axial coil
12. Determination of M and B_H - Tan C method
13. Spot Galvanometer - Figure of Merit
14. Spot Galvanometer - Charge sensitivity
15. Spot Galvanometer - Comparision of EMF's
16. Spot Galvanometer - Comparision of capacities
17. Owen's Bridge - C1/C2
18. De Sauty's Bridge - C1/C2

SEMESTER V & VI **PHYSICS PRACTICALS – III** **CREDIT -5**

1. LCR - Series Resonance circuit – L and Q
2. LCR - Parallel Resonance circuit – L and Q
3. Spot Galvanometer - Determination fo mutual inductance
4. Spot Galvanometer - Comparison of mutual inductance
5. Spot Galvanometer - High resistance by leakage
6. Spot Galvanometer - Internal Resistance of a cell
7. Anderson's bridge - Self Inductance
8. Rayleigh's bridge - Self Inductance
9. Maxwell's bridge - Self Inductance
10. Small amgled prism - Refractive index
11. Spectrometer - i-i' curve
12. Spectrometer - Minimum deviation
13. Spectrometer - Cauchy's Constant
14. Spectrometer - i-d curve
15. Spectrometer - Hartmann's Interpolation formula
16. Spectrometer - Small angled prism – Reffractive Index
17. Impedance and power factor - L R circuit
18. Impedance and power factor - C R circuit

SEMESTER V & VI **PHYSICS PRACTICALS – IV** **CREDIT -5**

1. Transistor characteristics : Common Emitter
2. Zener diode characteristics
3. Zener voltage reggulator
4. Single Stage Amplifier : gain and bandwidth
5. Clipper and Clamper : discrete components only
6. FET characteristics
7. Hartley Oscillator : Frequency and Inductance of coil
8. Colpitt's Oscillator : Frequency and Inductance of coil

9. Phase Shift Oscillator : Frequency
10. Wien's Bridge Oscillator: Frequency
11. Astable Multivibrator : using discrete componets
12. Monostable Multivibrator : using discrete components
13. Integrator and Differentiator : using discrete components
14. Voltage Doubler and Voltage Tripler
15. Logic gates : using discrete compoents
16. Full wave rectifier : π filters
17. UJT characteristics
18. SCR characteristics

SEMESTER V & VI **PHYSICS PRACTICALS – V** **CREDIT -5**

1. Logic Gates : IC
2. NAND as Universal gate: IC
3. NOR as Universal gate : IC
4. Dual Power Supply - IC 7812 and IC 7912
5. De-Morgan's Laws - Verification
6. Half Adder and Full Adder
7. Four bit binary adder
8. Half substractor and Full substractor
9. Four bit binary subractor
10. Astable Multivibrator - IC 555
11. Schmitt Trigger - IC 555
12. BCD counter
13. Astable Multivibrator - IC 741
14. Inegrator and Differentiator - IC 741
15. Adder and Substractor - IC 741
16. Four bit binary counter
17. Ring Counter
18. Voltage Regulator - IC 7805

SEMESTER III & IV **ANCILLARY ELECTRONICS PRACTICAL I** **CREDIT -3**

1. Zener - Diode Characteristics
2. Zener - Diode as Voltage regulator
3. CRO - Voltage study
4. Transistor Characteritics CE mode
5. Full wave rectifier
6. Half wave rectifier
7. Full wave bridge rectifier
8. PN Junction diode - Forwards and Reverse Characteristics
9. Clipping and Clapping
10. Op AMP Inverter

SEMESTER III & IV **ANCILLARY ELECTRONICS PRACTICAL II** **CREDIT -3**

1. BCD seven segment display
2. OP AMP adder
3. OP AMP subtractor
4. NAND as Universal gate : IC

5. NOR as Universal gate : IC
6. 2/4 Dicoder
7. OP AMP Integrator
8. OP AMP Differentiator
9. Logic Gates using Transistor
10. RS Flip Flop
11. J and D Flip Flop

c) When was the last exercise for curriculum revision undertaken: Academic year of 2018-2019 onwards.

d) Specialization of the course: Material Science

- Wide range of job opportunities in the employment areas like Power generating companies, Laboratories and Institutes, Educational Institutes Agricultural Research services, Hospitals, Aviation Industry ,Construction Firms, technical journals, Indian civil services, etc.
- There also available various job types like a professor, consulting physicist, etc.

Department: Mathematics

a) Copy of Curriculum

MADURAI KAMARAJ UNIVERSITY
(University with Potential for Excellence)
B.Sc – Mathematics (Semester)
CHOICE BASED CREDIT SYSTEM
REVISED SYLLABUS
(With effect from 2018-2019)

I B.Sc -Mathematics (I - SEMESTER)

S.No	Subject code	Category	Subject Name	Marks		Credit	No. of hours per week
				Internal	External		
1	UTMJL11	Part – I	TAMIL	25	75	3	6
2	UENJE11	Part – II	ENGLISH	25	75	3	6
3	SMTJC11	Part – III	CALCULUS	25	75	5	5
4	SMTJC12	Part – III	THEORY OF EQUATIONS & TRIGONOMETRY	25	75	5	5
5	SPHJA11	Part – III	ANCILLARY PHYSICS-I	25	75	4	6
6	UVEJV11	Part – IV	VALUE EDUCATION	25	75	2	2

I B.Sc -Mathematics (II - SEMESTER)

S.No	Subject code	Category	Subject Name	Marks		Credit	No. of hours per week
				Internal	External		
1	UTMJL21	Part – I	TAMIL	25	75	3	6
2	UENJE21	Part – II	ENGLISH	25	75	3	6
3	SMTJC21	Part – III	DIFFERENTIAL EQUATIONS	25	75	5	5
4	SMTJC22	Part – III	ANALYTICAL GEOMETRY 3D & VECTOR CALCULUS	25	75	5	5
5	SPHJA21	Part – III	ANCILLARY PHYSICS-II	25	75	4	4
6	SPHJA2P	Part – III	ANCILLARY PHYSICS LAB	40	60	1	2
7	UESJD21	Part – IV	ENVIRONMENTAL STUDIES	25	75	2	2

II B.Sc -Mathematics (III - SEMESTER)

S.No	Subject code	Category	Subject Name	Marks		Credit	No. of hours per week
				Internal	External		
1	UTMJL31	Part – I	TAMIL	25	75	3	6
2	UENJE31	Part – II	ENGLISH	25	75	3	6
3	SMTJC31	Part – III	MEHANICS	25	75	5	6
4	SPHJA31	Part – III	ANCILLARY PHYSICS-III	25	75	4	6
5	SMTJA31	Part – III	PROGRAMMING IN C	25	75	4	6

II B.Sc -Mathematics (IV- SEMESTER)

S.No	Subject code	Category	Subject Name	Marks		Credit	No. of hours per week
				Internal	External		
1	UTMJL41	Part – I	TAMIL	25	75	3	6
2	UENJE41	Part – II	ENGLISH	25	75	3	6
3	SMTJC41	Part – III	BASICS OF ANALYSIS	25	75	5	6
4	SPHJA41	Part – III	ANCILLARY PHYSICS-IV	25	75	4	4
5	SMTJA41	Part – III	PROGRAMMING IN C ++	25	75	4	4
6	SMTJA4P	Part – III	PROGRAMMING IN C & C++ LAB	40	60	1	2
7	SPHJA4P	Part – III	ANCILLARY PHYSICS LAB	40	60	1	2

III B.Sc -Mathematics (V- SEMESTER)

S.No	Subject code	Category	Subject Name	Marks		Credit	No. of hours per week
				Internal	External		
1	SMTDC51	Part – III	REAL ANALYSIS	25	75	5	5
2	SMTDC52	Part – III	NUMERICAL ANALYSIS	25	75	5	5
3	SMTDC53	Part – III	DIFFERENTIAL EQUATIONS	25	75	5	5
4	SMTDC54	Part – III	MODERN ALGEBRA	25	75	5	5
5	SMTDA51	Part – III	STATISTICS – I	25	75	4	6
6	SMTDS51	Part – IV	LAPLACE &	25	75	2	2

			FOURIER SERIES				
7	UES8D51	Part – IV	ENVIRONMENTAL STUDIES	25	75	2	2

III B.Sc -Mathematics (VI- SEMESTER)

S.No	Subject code	Category	Subject Name	Marks Internal	External	Credit	No. of hours per week
1	SMTDC61	Part – III	COMPLLEX ANALYSIS	25	75	5	5
2	SMTDC62	Part – III	GRAPH THEORY	25	75	5	5
3	SMTDC63	Part – III	OPERATIONS RESEARCH	25	75	5	5
4	SMTDC64	Part – III	LINEAR ALGEBRA	25	75	5	5
5	SMTDA61	Part – III	STATISTICS – II	25	75	4	6
6	SMTDS61	Part – IV	BOOLEAN ALGEBRA & LOGICS	25	75	2	2
7	UVE8V61	Part – IV	VALUE EDUCATION	25	75	2	2

b) List of the practical experiments in the curriculum actually done by the students and practical demonstrated .

DEPARTMENT OF MATHEMATICS

CURRICULUM PRACTICALS EXPERIMENTALS

PROGRAMMING IN ‘ C ’ LAB

- Write C Program on Simple Interest & compound Interest
- Write C Program on Salesman commission
- Write C Program on Quadratic Equation
- Write C Program on given number is Prime (or) Not.
- Write C Program on Sin, Cos & tan Numbers
- Write C Program on Matrix Addition
- Write C Program on Matrix Multiplication
- Write C Program on Ascending order in Numbers
- Write C Program on Alphabetical order in Names
- Write C Program on Number of count words and characters

- Write C Program on given number is Palindrome (or) Not

PROGRAMMING IN 'C++' LAB

- Write C++ Program on The simple and compound interest values
- Write C++ Program on Temperature calculation
- Write C++ Program on Area calculation
- Write C++ Program on Biggest among 3 numbers
- Write C++ Program on Student details using else if ladder
- Write C++ Program on Pyramid Series
- Write C++ Program on Calculate volume using function overloading
- Write C++ Program on Mul and div value using Inline function
- Write C++ Program on Student details using class
- Write C++ Program on Swapping 2 numbers using friend function
- Write C++ Program on Largest number using nesting of member function
- Write C++ Program on Unary operator
- Write C++ Program on Matrix transpose
- Write C++ Program on Mean and standard deviation
- Write C++ Program on Add two complex number using operator overloading
- Write C++ Program on Employee details using single inheritance
- Write C++ Program on Bank transaction using Multilevel inheritance

c) When was the last exercise for curriculum revision undertaken ?

Last exercise for curriculum revision was undertaken in the Academic Year of 2018-2019 onwards.

d) Specialization of the course – Mathematics.

- Job opportunities in various fields like Schools, Colleges, Coaching Centers, Banks, Government Organizations, Financial Institutes, IT Firms, Research Firms and Consultancies

Department: Computer Science

a) Copy of curriculum

MADURAI KAMARAJ UNIVERSITY
(University with Potential for Excellence)
B.Sc.Computer Science(Semester)
CHOICE BASED CREDIT SYSTEM
REVISED SYLLABUS
(With effect 2018 - 2019)

Semester	Details of the subject	Hours per Week	Marks		Total marks	Credit
			Internal	External		
I	**Part I** Tamil	6	25	75	100	3
	Part II English	6	25	75	100	3
	Part III Core Subject Programming in C	4	25	75	100	4
	Lab 1: Programming in C	6	40	60	100	4
	Skilled Based Subject Lab 2: Office Automation Lab	2	40	60	100	2
	Allied Subject Mathematical Foundation –I	4	25	75	100	4
	Part IV Value Education	2	25	75	100	2
II	**Part I** Tamil	6	25	75	100	3
	Part II English	6	25	75	100	3
	Part III Core Subject Object Oriented Programming with C++	4	25	75	100	4
	Lab 3 Object Oriented Programming with C++	6	40	60	100	4
	Skilled Based Subject Lab 4 Linux Programming	2	40	60	100	2
	Allied Subject Mathematical Foundation – II	4	25	75	100	4
	Part IV Environmental Studies	2	25	75	100	2
III	**Part I** Tamil	6	25	75	100	3
	Part II English	6	25	75	100	3
	Part III Core Subject					
	Data Structures and Computer Algorithms	4	25	75	100	4
	Digital Principles and Computer Organization	**4**	25	75	100	4
	Lab 5 Data Structures and Computer Algorithms	4	40	60	100	3
	Skilled Based Subject	2	40	60	100	2

	Lab 6 Multimedia					
	Allied Subject Resource Management Techniques	4	25	75	100	4
IV	**Part I** Tamil	6	25	75	100	3
	Part II English	6	25	75	100	3
	Part III Core Subject					
	Java Programming	4	25	75	100	4
	System Software	4	25	75	100	4
	Lab 7 Java Programming	4	40	60	100	3
	Skilled Based Subject **Lab 8** PHP Programming	2	40	60	100	2
	Allied Subject					
	Numerical Methods	4	25	75	100	4
	Part V Extension Activities		100			1
V	**Core Subject**					
	Relational Database Management System	5	25	75	100	4
	Operating System	5	25	75	100	4
	Software Engineering	5	25	75	100	4
	Lab 9 Relational Database Management System	6	40	60	100	4
	Skilled Based Subject **Lab 10** Python Programming	2	40	60	100	2
	Elective Subject-I 1. Client Server Computing 2. Android Programming 3. Theory of Computation	5	25	75	100	4
	Non Major Elective NME 1– Introduction to Computers and Office Automation	2	25	75	100	2
VI	**Core Subject**					
	Data Communication and Computer Networks	5	25	75	100	4
	Data Mining	5	25	75	100	4
	Lab 11 Web Technology	6	40	60	100	4
	Elective Subject-II 1. Computer Graphics 2. Compiler Design 3. Information Security	5	25	75	100	4
	Elective Subject-III Project Work/Viva Voce	5	25	75	100	5

	Skilled Based Subject Quantitative Aptitude	2	25	75	100	2
	Non Major Elective NME – 2 Introduction to Internet	2	25	75	100	2
Total		180				140

b) List of the practical experiments in the curriculum actually done by the students and practical demonstrated.

B.Sc., Computer Science
PRACTICAL – PROGRAMS LIST
CS2: Lab 1: Programming in C
(6 Hours- 4 credits)
Section-A

1. Write a C Program to find the sum of digits.
2. Write a C Program to check whether a given number is Armstrong or not.
3. Write a C Program to check whether a given number is Prime or not.
4. Write a C Program to generate the Fibonacci series.
5. Write a C Program to display the given number is Adam number or not.
6. Write a C Program to print reverse of the given number and string.
7. Write a C Program to find minimum and maximum of 'n' numbers using array.
8. Write a C Program to arrange the given number is ascending order.
9. Write a C Program to add, subtract and multiply two matrices.
10. Write a C Program to calculate NCR and NPR.

Section-B

1. Write a C Program to find the grade of a student using else if ladder.
2. Write a C Program to implement the various string handling functions.
3. Write a C Program to create an integer file and display the even numbers only.
4. Write a C Program to calculate quadratic equation using switch-case.
5. Write a C Program to implement the various string handling function.
6. Write a C Program to generate student mark list using array of structures.
7. Write a C Program to create and process the student mark list using file.
8. Write a C Program to create and process pay bill using file.
9. Write a C Program to create and process inventory control using file.
10. Write a C Program to create and process electricity bill using file.

SBS1: Lab 2: Office Automation
(2 Hours-2 Credits)

MS - WORD

1.Open a Word document to prepare your Resume by performing the following operations.
   (a) Formatting the Text-Alignment & Font style.
   (b) Page setup (margin alignment, page height & width)

2. Create a student mark sheet using table, find out the total & average marks and display the result.

3. Design an invitation of your course inauguration function using different fonts, font sizes, bullets and Word Art/Clip Art.

4. Mail Merge Concept.

(a) Prepare an invitation and to be sent to specific addresses in the data source.

MS - EXCEL

1. Create suitable work sheet with student mark details and use Data sort to display results and make out a suitable chart.
2. Prepare salary bill in a worksheet showing Basic Pay, DA, HRA, Gross salary, PF, Tax and Net salary using suitable Excel Functions.

MS - POWER POINT

1. Create a Power point presentation to explain various aspects of your college using auto play.
2. Create a Power point presentation to explain the sales performance of a company over a period of five years. Include slides covering the profile of the company, year wise sales and graph with gridlines, legends and titles for axes. Use Clip Art and animation features.

MS - ACCESS

1. Create a table for storing marks of 10 students. The fields of the table are given below: Reg. No, Name, Mark1, and Mark2, Mark3, Test average(Best Two/2), Assignment, Seminar, and Total marks(Test average+ Assignment+ Seminar) The fields 'Mark1', 'Mark2', 'Mark3' should not allow the user to enter a mark greater than 25 and should display proper message in such case. Similar constraint for the field 'Assignment' is 5 marks and for the field 'Seminar', it is 10 marks.
2. Create a table showing names of authors of at least 10 different books, title of books, the prices of these books, name of publishers and year of publication. Also create select, Action and Cross-tab queries to display the records from this table meeting the criteria used in these queries.
3. Create a form to enter the data directly into this form. The fields required are: Basic Pay, DA, HRA, Gross salary, PF, Income tax and Net salary.
4. Create a report that displays the customer name, address, phone number, item code, product quantity of the customers whose orders have been pending for over a month.

CS4: Lab 3: Object Oriented Programming with C++
(6 Hours-4 Credits)
Section-A

1. Printing Prime numbers between two given numbers.
2. Printing 3digit numbers as a series of words.
3. Finding area of geometric shapes using function overloading.
4. Inline functions for simple arithmetic operations.
5. Demonstrating the use of Pre-defined Manipulators.
6. Demonstrating the use of friend function.
7. Creating student mark list using array of objects.
8. Demonstrating constructor overloading.
9. Overloading the unary – operator.
10. Demonstrating single inheritance.
11. Demonstrating the use of **this** pointer.
12. Designing our own manipulator.
13. Illustrating function templates.
14. Illustrating class templates.

Section-B

1. Overloading the binary + operator.
2. Demonstrating Multiple inheritance.
3. Demonstrating Multilevel inheritance.
4. Demonstrating Hierarchical inheritance.
5. Demonstrating Virtual functions.
6. Processing mark list using binary file.
7. Count number of objects in a file.
8. Demonstrating the use of Command-line arguments.

SBS2: Lab 4: Linux Programming
(2 Hours-2 Credits)
Section-A

1. Write a Linux script to find the number of users who have logged in.
2. Write a Linux script to see the current date, user name and current directory.
3. Write a Linux script to print the numbers 5, 4, 3, 2, 1 using While loop.
4. Write a Linux script to set the attributes of a file.
5. Write a Linux script to convert lowercase to uppercase using tr utility.
6. Write a Linux script to copy and rename a file.
7. Write a Linux script to add 5 numbers and find the average.
8. Write a Linux script to convert a decimal number to hexadecimal conversion.
9. Write a Linux script to find the factorial of a number.
10. Write a Linux script to check for palindrome.

Section-B

1. Write a Linux script to display Hello Word in Bold, Blink effect and in different colors like red, green etc.
2. Write a Linux script to display a multiplication table.
3. Write a Linux script to perform arithmetic operations using case.
4. Write a Linux script to add two real numbers.
5. Write a Linux script to display the following pattern:

```
1
2    2
3    3    3
4    4    4    4
5    5    5    5    5
```

6. Write a Linux script to find the sum of digits and reversing of a given number.
7. Write a Linux script to display the student mark details.
8. Write a Linux script to prepare the electricity bill.
9. Write a Linux script to sorting the numbers in ascending order.
10. Write a Linux script
    (i) To create and append a file.
    (ii) To compare two files.

CS6: Lab 5: Data Structures and Computer Algorithms
(3Hours-3 Credits)
Section-A
(Programs from Data Structures Using C)

1. Implementing Stack as an Array.
2. Implementing Stack as a Linked list.

3. Convert Infix expression to Postfix expression using stack.
4. Convert Infix expression to Prefix expression using stack.
5. Implementing Queue as an Array.
6. Implementing Queue as a Linked list.
7. Binary Tree Traversals.
8. Implementing Binary Search Tree.

Section-B

(Programs from Computer Algorithms Using C++)

1. Linear Search.
2. Binary Search.
3. Bubble Sort.
4. Insertion Sort.
5. Merge Sort.
6. Quick Sort.
7. Selection Sort.

CS9 LAB 7 JAVA PROGRAMMING

4 HOURS 3 CREDITS

Section A

Write programs in java for the following

1. To implement a simple temperature conversion program
2. To perform addition and subtraction of complex number using class and objects
3. To perform volume calculation using method overloading
4. Using comment line arguments, test the given string is palindrome or not
5. String manipulation using string methods (use of any 5 string methods are preferred)
6. Write a program to fill names into a list. Also, copy them in reverse order in another list. If the name contain any numeric value through an exception invalid name
7. Program to demonstrate the use of any two built in exception in java.

Section B

8. To perform multiplication of matrix using class and objects.
9. Using multilevel inheritance process students marks
10. Implement multiple inheritance for pay roll processing
11. Implement interface for area calculation for difference shapes.
12. Create packages called arithmetic that contains methods to deal with all arithmetic operators. Also write a program to use the package.
13. Create two threats such that one of the thread generate Fibonacci series and another generate perfect numbers between two given limits .
14. Define an exception called**: Marks out of bound**:exception, that is thrown if entered marks are greater than 100.
15. Program to demonstrate to the use of wrapper class methods.
16. File processing using byte stream .
17. File processing using character stream.
18. Write applets to draw the following shapes:
    a)Cone b)cylinder c)Square inside a circle d)Circle inside a square
19. Write an applet program to design a simple calculator.
20. Write an applet program to animate a ball across the screen.

SBS4: LAB -8: PHP PROGRAM
(2HOURS-2 CREDITS)

Write PHP program for the following

1. To demonstrate all array operations (array_search(),array_diff(),array_combine(),array_match(),sort())
2. To demonstrate all control statements(find factorial of the given number using IF ,While , Do-while).
3. To display the inventory table using key & value pairs.
4. To print student table using key & values pairs and search particular student number(whether it is present or not)
5. To illustrate user defined Function(define all function type)
   1.Function without input arguments and no return value.
   2.Function without input arguments and return value
   3.Function with input arguments and no return value
   4.Function with input arguments and return value
   5. Function with default argument
6. To find factorial of the given number using recursion .
7. To calculate nCr using input command to include a factorial function.
8. Write a PHP program to store current date – time in a COOKIE and display the 'last visited on' date – time on the web page upon reopen in the same page. To perform string manipulation.
9. To process personal details using files.
10. To design an student mark database using HTML forms and process using PHP.

SBS3: Lab 6 : Multimedia

(2 Hours – 2 credits)

Photoshop

1. Basic tools used in photoshop.
2. Design on image by cutting the object from 3 files and organize them in a single file and apply feather effects.
3. Design an image by applying mirror effect.
4. Design an image by extracting flower only from given photographic image.
5. Design an image by applying text and transform tool.
6. Design an image by using patch or healing brush tool to remove damaged parts of an image.
7. Design an image by applying color balance to change the color of an image.
8. Design an image by applying Lighting effect filter.
9. Design an image by applying blending options to make a text effect.
10. Design an image by applying rainbow effect.
11. Design an image by applying text masking effect.
12. Design a college id card using any tools.
13. Design a banner for your college with images And text .

Flash

1. Basic tools used in flash.
2. Develop a Flash application using motion tween.
3. Develop a Flash application using shape tween.
4. Develop a Flash application for ball bouncing using motion guide path.
5. Develop a Flash application for masking effect.
6. Develop a Flash application using layer based animation.
7. Develop a Flash application to represent the growing moon.
8. Write action script to play and stop an animation.
9. Create an appealing animation movie of your choice combining both motion tweening and shape tweening. Also add appropriate sound effects.

CS14: LAB 9: RELATIONAL DATABASE MANAGEMENT SYSTEMS (6 HOURS – 4 CREDITS)

The Following concepts must be introduced to the students :

DDL Commands

- Create table, alter table, Drop table

DML Commands

- Select , Update and insert statements
- Condition specification using Boolean and comparison operators
- (and, or, not, =,<>,>,<,>=,<=)
- Arithmetic operators and aggregate functions (Count, Sum, Avg, Min, Max)
- Multiple table queries (Join on different and same tables)
- Nested select statements
- Set manipulation using (any , in, contains, all, not in, not contains, exists, not exists, union, intersect, minus, etc.)
- Categorization using group by …….having
- Arranging using order by

1. Create a table Student-master with the following fields client_no, name, address, city, state, pincode , remarks, bal_due with suitable data types.

a. Create another table supplier_table from client_master. Select all the fields and rename client_no with supplier_no and name with supplier_name.
b. Insert data into client_master
c. Insert data into supplier_master from client_master.
d. Delete the selected row in the client_master.

2. Create a table sales_order with s_order_no and product_no as primary key. Set other fields to store client number , delivery address , dlivery date, order, order status.
   a. Add a new column for storing salesman number using ALTER Command.
   b. Set the s_order_no as foreign key as table constraints.
   c. Set the s_order_no as foreign key as table constraints.
   d. Enforce the integrity rules using CHECK.

3. Create a table student _master with the following fields name, regno,dept and year with suitable data types. Use select command to do the following.
   a. Select the student‘s name column.
   b. Eliminate the duplicate entry in table.
   c. Sort the table in alphabetical order.
   d. Select all the Students of a particular department.

4. Create a table sales_order_details with the s_order_no as primary key and with the following fields : product_no , Description , qty_ordered, qty_dis, product_rate, profit_precent, sell_price, supplier_name.

   a. Select each row and compute sell _price * and sell_price*1.50 for each row selected.
   b. Select product_no,profit_present,Sell_price where profit_per is not between 10 and 20 both inclusive.
   c. Select product_no, description , profit_percent,sell_price where profit_percent is not between 20 and 30.
   d. Select the supplier name and product_no where supplier name has ‘r’ or ‘h’ as second character.

5. Create and use the following database schema to answer the given queries

EMPOLYEE:			
DEFAULT			
Field	**Type**	**Null**	**Key**
Eno	**Char(3)**	**No**	**Primary**
Ename	**Varchar(50)**	**No**	
Job_type	**Varchar(50)**	**No**	
Manager	**Char(3)**	**Yes**	**Foreign**
Hiredate	**Date**	**No**	
Dno	**Integer**	**Yes**	**Foreign**
Commission	**Decimal(10,2)**	**Yes**	
Salary	**Decimal(7,2)**	**No**	

DEPARTMENT			
DEFAULT			
Field	**Type**	**Null**	**Key**
Dno	**Integer**	**No**	**Primary**
Dname	**Varchar(50)**	**Yes**	

Perform the following queries:

a. Query to display Empolyee Name, Job, HireDate , Empolyee Nmeber, for each employee with employee Number appearing first.
b. Query to display unique Jobs from the Empolyee Table.
c. Query to display the Empolyee Name concatenated by a Job separated by a comma.
d. Query to display all the data from the Empolyee Table. Separate each Column by a comma and name the said column as THE_OUTPUT.
e. Query to display the Employee Name and Salary of all the employees earning more than 52850.
f. Query to display Employee Name and Department Number for the Employee No =7900.
g. Query to display Employee Name and Salary for all employees whose salary is not in the range of $1500 and $2850.
h. Query to display Employee Name and Department No. of all the employee in Dept 10and Dept 30 in the alphabetical order by name.
i. Query to display Name and Hire Date of Every Employee who was hire in 1981.
j. Query to display Name and Job of all employees who don't have a current Manager.
k. Query to display the Name, Salary and Commission for all the employees who earn commission.

l. Sort the data in descending order of Salary and Commission.
m. Query to display Name of all the employees where the third letter of the name is _A'.

Query to display Name of all employees either have two_R's or have two _A's in their name and are either in Dept No = 30 or their Manager's Employee No= 7788.

n. Query to display Name, Salary and Commission for all employees whose Commission Amount is 14 greater than their Salary increased by 5%.
o. Query to display Name, Hire Date Salary Review Date Which is the 1 st Monday after six months of employment.
p. Query to display Name and calculate the number of months between today and the date each employee was hired.
q. Query to display Name with the 1 st letter capitalized and all other letter lower case and length of their name of all the employees whose name starts with_J " ," A" and _M".
r. Query to display Name, Department Name and Department No for all the employees.
s. Query to display Unique Listing of all Jobs that are in Department #30.
U. Query to display Name, Job, Department No, And Department Name for all the employees working at the Mumbai location.

v. Query to display Name, Dept No. And Salary of any employees whose department No. and salary matches both the department no. and the salary of any employee who earns a commission.

W. Query to display the Highest, Lowest, Sum and Average Salaries of all the employees.

x. Query to display Employee No. and Name for all employees who earn more than the average salary.

y. Query to display Employee Number and Name for all employees who work in a department with any employee whose name contains a_T'.

4. Create a table master_book to contain the information of magazine code, magazine name and publisher. Weekly /biweekly/monthly, price , write PL/SQL block to perform insert, update and delete operations on the above table.
5. Create a table to contain phone number, user name , address of the phone user, Write a function to search for a address using phone numbers.
6. Create a table stock to contain the item-code, item-name, current stock , date of last purchase. Write a stored to seek for an item using item-code and delete it, if the date of last purchase is before 1 year from the current date. If not, update the current stock.
7. Create a table to store the salary details of the employees in a company Declare the cursor to contain employee number, employee name and net salary. Use Cursor to update the employee salaries.
8. Create a table to contain the information about the voters in a particular constituency . Write a proper trigger to update or delete a row in the table.

SBS 5 : LAB 10 : PYTHON PROGRAMMING

(2 HOURS - 2 credits)

List of exercise for python programming

Section A (simple program)

1. Write a menu driven program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon user's choice.
2. WAP to calculate total marks, percentage and grade of students. Marks obtained in each of the three subject are to be input by the user. Assign grades according to the following criteria:

Grade A : percentage >=80
Grade B:
Percentage >=70 and
<80 Grade C :
Percentage >=60 and
<70 Grade D:
Percentage >=40 and
<60 Grade E:
Percentage <40

3. Write a menu driven program using user defined function to find the area of rectangle , square, circle and triangle by accepting suitable input parameters from users.
4. WAP to display the first n terms of fibonacci series.
5.WAP to find factorial of the given number.
6. WAP to find sum of the following series for n terms : 1-2/2! +3/3! -----n/n!.
7. WAP to calculate the sum and product of two compatible matrices.

Section : B (visual python)

All the programs should be written using user defined function, wherever possible

1. Write a menu driven program to create mathematical 3D objects.

I) curve
II) sphere
III) cone
Iv) arrow
V) ring
Vi) cylinder

2. WAP to read n integer and display them as a histogram.
3. WAP to display sine, Cosine, polynomial and Exponentiall curve.
4. WAP to plot a graph of people with pulse rate P vs. Height H. The values of P and H are to be entered by the user.
5.WAP to calculate tha mass M in a chemical reaction. The mass M(in gms) disintergrates according to the formula M=60/(t+2), where t is the time in hours. Sketch a graph for t vs m where t >=0.
6. Input initial velocity and acceleration, and plot the following graphs depicting and equation of motion.

I) velocity wrt time(v=u+at)
II) distance wrt time (s= u*t+0.5*a*t*t)
III) distance wrt velocity (s=(v*v-u*u) /2*a)

CS16 : LAB11 : WEB TECHNOLOGY
(6 HOURS- 4 credits)
(select one question from JavaScript and ASP. Net)
JAVASCRIPT AND JSP

1. Write a javascript program to generate Fibonacci series.
2. Write a javascript program for checking palindrome or not.
3. write a javascript program to validate form.
4. Write a javascript program to create pop up window.
5. On HTML form with a javascript event handler.
6. Write a javascript program to remove items from a top down list.
7. Write a javascript program to display a random image.
8. Write a javascript program to valid an e-mail address.
9. Writa a JSP to add the contents of another JSP file using @include directives.
10. Write a JSP to check whether the given no is prime or not.
11. Write a JSP to forward one JSP file to another JSP file using forward action.

ASP. Net

12. Working with page and forms using ASP. Net
13. To create an account registration form and perform the following validation

a) user
b) password
c) retype password
d) gender
e) E-mail mail -I'd
f) date of birth
g) mobile

14. To read students detail from XML file.
15. To display vehicle details bin tree view control from XML file.
16. Create any application program using menu server control.
17. To process student database using sql data source control.

18.To display employee details from the database using site map data sources.
19. To read and display personal data base using XML data source control.
20. Create a webpage for your department.
21. Send a mail.

c) When was the last exercise for curriculum revision undertaken?

Last exercise for curriculum revision was undertaken in the Academic Year of 2018-2019 onwards.

d) Specialization of the course: Data Mining and Web Technology

- Opportunity to learn and teach recent technologies like python and web programming.
- Demand for high-qualified IT-professionals.
- Opportunities in interdisciplinary research.
- Job opportunities in various fields like Systems analyst, Information technology manager, Software programmer, Network programmer and Cyber Security Manager.