Proceedings of the Registrar, Kakatiya University, Warangal regarding the implementation of CBCS in all the UG Colleges from the academic year 2016-17

PROF. KHAJA ALTHAF HUSSAIN
REGISTRAR

OFFICE OF THE REGISTRAR
KAKATIYA UNIVERSITY
WARANGAL – 506 009

No. 199 /B2/KU/2016 Date: 2-03-2016

To

The Principals of University & Affiliated Colleges
Offering U.G. (Professional & Non-Professional) courses
KAKATIYA UNIVERSITY

Sub:- Implementation of Choice Based Credit System in U.G. (Professional & Non-Professional) courses from the academic year 2016-2017 – Regarding.

Sir/Madam,

The Higher Education Department, Government of Telangana on the directions of M.H.R.D. deliberated at various levels and took a decision making the implementation of Choice Based Credit System mandatory at UG level for all Colleges.

In view of this, it is to inform you in advance that the implementation of CBCS is mandatory in all U.G. courses (Professional & Non-Professional) in all Colleges under the jurisdiction of Kakatiya University from the academic year 2016-2017.

Therefore, it is to bring it to the notice of the Managements and Principals to bring awareness among all the stake holders by downloading the relevant material from UGC website and also Kakatiya University website.

In this connection, a meeting of Principals of all the Under-Graduate (Non-Professional) colleges is convened on 14th March, 2016 at 10.30 a.m. in the Senate Hall of Administrative Building on the University campus to discuss (i) Implementation of Choice Based Credit System (ii) Uploading of D.C.F.-II form of All India Survey on Higher Education (AISCHE) portal.

The out-station members shall paid TA & DA as per norms from the provision of "20% Registration Fee" kept at the disposal of the respective colleges for academic activities.

Kindly make it convenient to attend the meeting without fail.

Yours faithfully,

REGISTRAR

CURRICULUM FOR BIOTECHNOLOGY

IN UNDER GRADUATE DEGREE PROGRAMME
CBCS SYLLABUS SCHEDULE 2016 – 2017

1	Semester	Course category	Title of the Paper	No. of Credits	HPW	Max. Marks			Total Marks
						I.A	End Exam	Total	
FIRST YEAR									
BS104	I	DSC-1A (Theory)	Cell Biology & Genetics	4	4	20	80	100	125
		DSC-1A (Practical)		1	2	-	25	25	
BS204	II	DSC-1B (Theory)	Nucleic Acids- Biostatistics - Bioinformatics	4	4	20	80	100	125
		DSC-1B (Practical)		1	2	-	25	25	
SECOND YEAR									
BS304	III	DSC-1C (Theory)	Biological Chemistry	4	4	20	80	100	125
		DSC-1C (Practical)		1	2	-	25	25	
		SEC - I	Computer Basics and Automation	2	2	-	50	50	50
BS404	IV	DSC-1D (Theory)	Microbiology and Immunology	4	4	20	80	100	125
		DSC-1D (Practical)		1	2	-	25	25	
		SEC - II	Multimedia and Applications	2	2	-	50	50	50
THRID YEAR									
BS502	V	GE-1 (Theory)	Public Health and Hygiene (Interdisciplinary)	4	4	-	100	100	150
		GE-1		-	-	50	-	50	
BS503		DSC-1E (Theory)	Molecular Biology & rDNA Technology	3	3	15	60	75	100
		DSC-1E (Practical)		1	2	-	25	25	
BS506		DSC-1F (Theory)	Subject Electives: A- Plant Biotechnology or B- Medical Biotechnology	3	3	15	60	75	100
		DSC-1F (Practical)		1	2	-	25	25	
		SEC - III	Verbal Reasoning For Aptitude Test	2	2	-	50	50	50
BS602	VI	GE-2 (Theory)	Water Resources Management (Interdisciplinary)	4	4	-	100	100	150
		GE-2		-	-	50	-	50	
BS603		DSC-1G (Theory)	Microbial Biotechnology	3	3	15	60	75	100
		DSC-1G (Practical)		1	1	-	25	25	
BS606		DSC-1H (Theory)	Subject Electives: A-Animal Biotechnology or B- Environmental Biotechnology	3	3	15	60	75	100
		DSC-1H (Practical)		1	1	-	25	25	
BS601		SEC- IV	Quantitative Aptitude Test	2	2	-	50	50	50
			Summary of Credits	56		-	-	-	1400

Vaagdevi Degree & P.G. College * Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Annexure – I (Credits)
Proposed CBCS Scheme for B.Sc.
w.e.f 2019-20

Courses		Papers	Total Credits	Credits for each paper / Semester B.Sc.					
				I	II	III	IV	V	VI
Core Courses DSC	Optional-1	4	20	5	5	5	5	-	-
	Optional-2	4	20	5	5	5	5	-	-
	Optional-3	4	20	5	5	5	5	-	-
Elective Courses DSE	Optional-1	2	10	-	-	-	-	5	5
	Optional-2	2	10	-	-	-	-	5	5
	Optional-3	2	10	-	-	-	-	5	5
Language	English(First Language)	5	20	4	4	3	3	3	3
	Second Language	5	20	4	4	3	3	3	3
Ability Enhancement Compulsory Course AECC	Environmental Science / Basic Computer Skills	1	2	2	-	-	-	-	-
	Basic Computer Skills / Environmental Science	1	2	-	2	-	-	-	-
Skill Enhancement Course SEC	SEC1	1	2	-	-	2	-	-	-
	SEC2	1	2	-	-	2	-	-	-
	SEC3	1	2	-	-	-	2	-	-
	SEC4	1	2	-	-	-	2	-	-
Generic Elective GE	Open Stream	1	4	-	-	-	-	4	-
Project Work/Optionals		1	4	-	-	-	-	-	4
Total Credits in each semester				25	25	25	25	25	25
Total Credits in UG				150					
Credits under Non-CGPA	NSS /NCC /sports / Extra curricular	6		Upto 6 (2 in each year)					
	Summer Internship	4		Upto 4 (2 in each, after I & II years)					

Annexure II

Proposed New Grading System

SGPA (SEMESTER GRADE POINT AVERAGE)			
S. No.	Grade Point	Range of marks	Grade Letter
1	10	Equal to and above 90 Marks	A+
2	9	More than or equal to 80 and less than 90 Marks	A
3	8	More than or equal to 70 and less than 80 Marks	B+
4	7	More than or equal to 60 and less than 70 Marks	B
5	6	More than or equal to 55 and less than 60 Marks	C+
6	5	More than or equal to 50 and less than 55 Marks	C
7	4	More than or equal to 40 and less than 50 Marks	D
8	0	Below 40 Marks	F

Vaagdevi Degree & P.G. College, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda

TELANGANA STATE COUNCIL OF HIGHER EDUCATION
PROPOSED CBCS COMMON CORE SCHEME FOR B.SC. COURSE
OPTIONAL -1: BOTANY

CODE	PAPER TITTLE	Course Type	HPW	Credits
	FIRST YEAR SEMSTER - I			
BS 104	PAPER-I : Microbial Diversity and Lower Plants	DSC-1A	4T+2P=6	4+1=5
	FIRST YEAR SEMSTER - II			
BS 204	PAPER-II: Gymnosperms, Taxonomy of Angiosperms and Ecology	DSC-1B	4T+2P=6	4+1=5
	SECOND YEAR SEMSTER - III			
BS 301	SEC-1: Nursery and Gardening	SEC-1	2	2
BS 302	SEC-2: Biofertilizers and Organic Farming	SEC-2	2	2
BS 304	PAPER-III: Plant Anatomy and Embryology.	DSC-1C	4T+2P=6	4+1=5
	SECOND YEAR SEMSTER - IV			
BS 401	SEC-3: Greenhouse Technology	SEC-3	2	2
BS 402	SEC-4: Mushroom Culture Technology	SEC-4	2	2
BS 404	PAPER-IV : Cell Biology, Genetics & Plant Physiology	DSC-1D	4T+2P=6	4+1=5
	THIRD YEAR SEMESTER - V			
BS 501	GE-1: Industrial Microbiology	GE-1	4T	4
BS 502	DSE -1A: Biodiversity & Conservation DSE -1B: Economic Botany DSE -1C: Seed Technology	DSE-1A / DSE-1B / DSE-1C	4+2	4+1
	THIRD YEAR SEMESTER – VI			
BS 601	DSE-3: Project	PROJECT	4	4
BS 602	DSE -2A: Plant Molecular Biology DSE -2B: Tissue Culture and Biotechnology DSE -2C: Analytical Techniques in Plant Sciences	DSE-2A / DSE-2B / DSE-5E	4T+2P=6	4+1=5

AECC: Ability Enhancement Compulsory Course, SEC: Skill Enhancement Course, GE: Generic Elective, DSC: Discipline Specific Core, DSE: Discipline Specific Elective.

Vaagdevi Degree & P.G. College, Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Telangana State Council of Higher Education, Govt. of Telangana B.Sc., CBCS Common Core Syllabi for all Universities in Telangana

PROPOSED SCHEME FOR CHOICE BASED CREDIT SYSTEM IN B.Sc., Chemistry from 2019-2020

CODE	COURSE TITLE	COURSE TYPE	HPW	CREDITS
	FIRST YEAR- SEMSTER I			
	Ability Enhancement Compulsory Course AECC-1	ES	2	2
	English	CC-1A	4	4
	Second language	CC-2A	4	4
	Optional I	DSC-1A	4T+3P=7	4+1=5
	Optional II	DSC-2A	4T+3P=7	4+1=5
	Optional III- Chemistry - I **Laboratory Course – I** **(Qualitative Analysis)**	**DSC-3A**	4T, 3P } = 7	4, 1 } =5
	Total Credits		31	25
	FIRST YEAR- SEMSTER II			
BS 201	Ability Enhancement Compulsory Course AECC-2	BCS	2	2
BS 202	English	CC-1B	4	4
BS 203	Second language	CC-2B	4	4
BS 204	Optional I	DSC-1B	4T+3P=7	4+1=5
BS 205	Optional II	DSC-2B	4T+3P=7	4+1=5
BS 206	**Optional III- Chemistry - II** **Laboratory Course - II** **(Quantitative Analysis)**	**DSC-3B**	4T, 3P } = 7	4, 1 } =5
	Total Credits		31	25
	SECOND YEAR- SEMSTER III			
BS 301	Rules of Chemistry Laboratory and Lab Reagents Remedial methods for pollution, drinking water and Soil fertility	SEC-1 SEC-2	2 2	2 2
BS 302	English	CC-1C	3	3
BS 303	Second language	CC-2C	3	3
BS 304	Optional I	DSC-1C	4T+3P=7	4+1=5
BS 305	Optional II	DSC-2C	4T+3P=7	4+1=5
BS 306	**Optional III- Chemistry - III** **Laboratory Course - III** **(Synthesis of Organic compounds)**	**DSC-3C**	4T, 3P } = 7	4, 1 } =5
	Total Credits		31	25
	SECOND YEAR- SEMSTER IV			
BS 401	Materials and their Applications Chemistry of Cosmetics and Food Processing	SEC-3 SEC-4	2 2	2 2
BS 402	English	CC-1D	3	3
BS 403	Second language	CC-2D	3	3
BS 404	Optional I	DSC-1D	4T+3P=7	4+1=5
BS 405	Optional II	DSC-2D	4T+3P=7	4+1=5
BS 406	**Optional III- Chemistry - IV** **Laboratory Course - IV** **(Qualitative and Spectral Analysis of Organic Compounds)**	**DSC-3D**	4T, 3P } = 7	4, 1 } = 5
	Total Credits		31	25

AECC: Ability Enhancement Compulsory Course, SEC: Skill Enhancement Course, DSC: Discipline Specific Course, GE: Generic Elective, ES: Environmental Science , BCS : Basic computer skills.

(Dr. M. NOORJAHAN) Palamuru Univ. HOD Chemistry

Dr. G. BALAKISHAN CBOS, TU

(Dr. G. Hanumanthu) K.U. Wgl

Dr. M. Sarasija SU

Principal

Vaagdevi Degree & P.G. College

KAKATIYA UNIVERSITY WARANGAL 506 009
Scheme for under Choice Based Credit System
With Effect from the Academic Year 2016-2019

B.SC. PROGRAMME

FIRST YEAR

SEMESTER - I

Code	Course category	Title of the Paper	No. of Credits	HPW	Max. Marks			Total Marks
					LA	End Exam	Lab Practical	
BS101	AECC-1	ENVIRONMENTAL STUDIES	2	2	10	40	-	50
BS102	CC-1A	ENGLISH	5	5	20	80	-	100
BS103	CC-2A	SECOND LANGUAGE	5	5	20	80	-	100
BS104	DSC-1A	OPTIONAL - I	4	4	20	80	25	125
		OPTIONAL – I LAB	1	2				
BS105	DSC-2A	OPTIONAL – II	4	4	20	80	25	125
		OPTIONAL – II LAB	1	2				
BS106	DSC-3A	OPTIONAL – III	4	4	20	80	25	125
		OPTIONAL – III LAB	1	2				
		Summary of Credits	27	-	-	-	-	625

SEMESTER - II

Code	Course category	Title of the Paper	No. of Credits	HPW	Max. Marks			Total Marks
					LA	End Exam	Lab Practical	
BS201	AECC-2	GENDER SENSITISATION	2	2	10	40	-	50
BS202	CC-1B	ENGLISH	5	5	20	80	-	100
BS203	CC-2B	SECOND LANGUAGE	5	5	20	80	-	100
BS204	DSC-1B	OPTIONAL - I	4	4	20	80	25	125
		OPTIONAL – I LAB	1	2				
BS205	DSC-2B	OPTIONAL – II	4	4	20	80	25	125
		OPTIONAL – II LAB	1	2				
BS206	DSC-3B	OPTIONAL – III	4	4	20	80	25	125
		OPTIONAL – III LAB	1	2				
		Summary of Credits	27	-	-	-	-	625

AECC: Ability Enhancement Compulsory Course;
SEC: Skill Enhancement Course;
DSC: Discipline Specific Course;
DSE: Discipline Specific Effective;
GE: Generic Elective;

Vaagdevi Degree & P.G. College Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY WARANGAL 506 009
Scheme for under Choice Based Credit System
With Effect from the Academic Year 2016-2019

B.Sc. PROGRAMME

SECOND YEAR

SEMESTER - III

Code	Course category	Title of the Paper	No. of Credits	HPW	Max. Marks			Total Marks
					I.A	End Exam	Lab Practical	
BS 301	SEC-1	Computer Basics and Automation	2	2	10	40	-	50
BS 302	CC-1C	ENGLISH	5	5	20	80	-	100
BS 303	CC-2C	SECOND LANGUAGE	5	5	20	80	-	100
BS 304	DSC-1C	OPTIONAL - I	4	4	20	80	25	125
		OPTIONAL – I LAB	1	2				
BS 305	DSC-2C	OPTIONAL – II	4	4	20	80	25	125
		OPTIONAL – II LAB	1	2				
BS 306	DSC-3C	OPTIONAL – III	4	4	20	80	25	125
		OPTIONAL – III LAB	1	2				
		Summary of Credits	27	-	-	-	-	625

SEMESTER - IV

Code	Course category	Title of the Paper	No. of Credits	HPW	Max. Marks			Total Marks
					I.A	End Exam	Lab Practical	
BS401	SEC-2	Multimedia Application	2	2	10	40	-	50
BS402	CC-1D	ENGLISH	5	5	20	80	-	100
BS403	CC-2D	SECOND LANGUAGE	5	5	20	80	-	100
BS404	DSC-1D	OPTIONAL - I	4	4	20	80	25	125
		OPTIONAL – I LAB	1	2				
BS405	DSC-2D	OPTIONAL – II	4	4	20	80	25	125
		OPTIONAL – II LAB	1	2				
BS406	DSC-3D	OPTIONAL – III	4	4	20	80	25	125
		OPTIONAL – III LAB	1	2				
		Summary of Credits	27	-	-	-	-	625

AECC: Ability Enhancement Compulsory Course;
SEC: Skill Enhancement Course;
DSC: Discipline Specific Course;
DSE: Discipline Specific Effective;
GE: Generic Elective;

Vaagdevi Degree & P.G. College * Kishanpura, Hanumakonda. *

A. [signature]
Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY WARANGAL 506 009
Scheme for under Choice Based Credit System
With Effect from the Academic Year 2016-2019
PDF Compressor Free Version
B.SC. PROGRAMME

FINAL YEAR

SEMESTER - V

Code	Course Type	Title of the Paper	No. of Credits	HPW	Max. Marks			Total Marks
					I.A	End Exam	Total	
BS 501	SEC-3	Verbal Reasoning for Aptitude Test (Inter-disciplinary to be offered to all Science departments)	2	2	10	40	50	50
BS 502	GE-I	Public Health and Hygiene (Inter-disciplinary to be offered to all Science departments)	2	2	10	40	50	50
BS 503	DSC-1E	OPTIONAL – I	3	3	20	80	100	125
		OPTIONAL – I LAB	1	2	-	25	25	
BS 504	DSC-2E	OPTIONAL – II	3	3	20	80	100	125
		OPTIONAL – II LAB	1	2	-	25	25	
BS505	DSC-3E	OPTIONAL – III	3	3	20	80	100	125
		OPTIONAL – III LAB	1	2	-	25	25	
BS506	DSE-1E	OPTIONAL – I Elective (A/B/C)	3	3	20	80	100	125
		OPTIONAL – I Elective (A/B/C) LAB	1	2	-	25	25	
BS507	DSE-2E	OPTIONAL – II Elective (A/B/C)	3	3	20	80	100	125
		OPTIONAL – II Elective (A/B/C) LAB	1	2	-	25	25	
BS508	DSE-3E	OPTIONAL – III Elective (A/B/C)	3	3	20	80	100	125
		OPTIONAL – III Elective (A/B/C) LAB	1	2	-	25	25	
		Summary of Credits	28	34	-	-	-	850

*DSC: Discipline Specific Course (Core)
*SEC: Skill Enhancement Courses
*DSE: Discipline Specific Elective (Elective).

Vaagdevi Degree & P.G. College * Kishanpura, Hanumakonda. *

A. [signature]
Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY WARANGAL 506 009
Scheme for under Choice Based Credit System
With Effect from the Academic Year 2016-2019
B.SC. PROGRAMME

FINAL YEAR

SEMESTER - VI

Code	Course Type	Title of the Paper	No. of Credits	HPW	Max. Marks			Total Marks
					LA	End Exam	Total	
BS 601	SEC-4	Quantitative Aptitude Test (Interdisciplinary to be offered to all Science departments)	2	2	10	40	50	50
BS 602	GE-II	Water Resources Management (Interdisciplinary to be offered to all Science departments)	2	2	10	40	50	50
BS 603	DSC-1F	OPTIONAL - I	3	3	20	80	100	125
		OPTIONAL - I LAB	1	2	-	25	25	
BS 604	DSC-2F	OPTIONAL - II	3	4	20	80	100	125
		OPTIONAL - II LAB	1	2	-	25	25	
BS 605	DSC-3F	OPTIONAL - III	3	3	20	80	100	125
		OPTIONAL - III LAB	1	2	-	25	25	
BS 606	DSE-1F	OPTIONAL - I Elective (A/B/C)	3	3	20	80	100	125
		OPTIONAL - I Elective (A/B/C) LAB	1	2	-	25	25	
BS 607	DSE-2F	OPTIONAL - II Elective (A/B/C)	3	3	20	80	100	125
		OPTIONAL - II Elective (A/B/C) LAB	1	2	-	25	25	
BS 608	DSE-3F	OPTIONAL - III Elective (A/B/C)	3	3	20	80	100	125
		OPTIONAL - III Elective (A/B/C) LAB	1	2	-	25	25	
		Summary of Credits	28	34	-	-	-	850

*DSC: Discipline Specific Course (Core)
*SEC: Skill Enhancement Courses
*DSE: Discipline Specific Elective (Elective).

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda. ★

A. [signature]
Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Course Structure of B.Sc (Physics) Programme under CBCS pattern
w.e.f. Academic Year 2016-17

B.Sc. (Physics) Syllabus, Kakatiya University, Warangal
CBCS pattern in Semester System (w. e. from 2016-2017)

KAKATIYA UNIVERSITY, WARANGAL
SCHEME FOR CHOICE BASED CREDIT SYSTEM
B.Sc. (PHYSICS)
SEMESTER PATTERN

YEAR	SEM	COURSE (PAPER) TITLE WITH CODE	COURSE TYPE*	HRS/ WEEK	CREDITS	MARKS	
						Internal Assessment	SEM End Exam
FIRST	I	101: Mechanics	DSC-1	4	4	20	80
		101(P): Mechanics Lab (Pr)	DSC-1(P)	3	1	-	25
	II	201: Waves and Oscillations	DSC-2	4	4	20	80
		201(P): Waves and Oscillations Lab (Pr)	DSC-2(P)	3	1	-	25
SECOND	III	301: Thermal Physics	DSC-3	4	4	20	80
		301(P): Thermal Physics Lab (Pr)	DSC-3(P)	3	1	-	25
	IV	401: Optics	DSC-4	4	4	20	80
		401(P): Optics Lab (Pr)	DSC-4(P)	3	1	-	25
THIRD	V	501: Electromagnetism	DSC-5	3	3	15	60
		501(P): Electromagnetism Lab (Pr)	DSC-5(P)	3	1	-	25
		502: Elective (Theory) – 1 (A/B/C) A. Solid state physics B. Modern Optics	DSE-1	3	3	15	60
		502(P): Elective (Practical) - 1 (A/B/C) A. Solid state physics Lab B. Modern Optics Lab	DSE-1(P)	3	1	-	25
	VI	601: Modern Physics	DSC-6	3	3	15	60
		601(P): Modern Physics Lab (Pr)	DSC-6(P)	3	1	-	25
		602: Elective (Theory) – 2 (A/B/C) A. Basic Electronics B. Physics of Semiconductor devices	DSE-2	3	3	15	60
		602(P): Elective (Practical) – 2 (A/B/C) A. Basic Electronics Lab B. Physics of Semiconductor devices Lab	DSE-2(P)	3	1	-	25
		Total			**36**	**140**	**760**
						Grand Total : 900	

*DSC: Discipline Specific Course (Core) DSE: Discipline Specific Elective (Elective)

Dr. B. Venkatram Reddy
Chairman, Board of Studies in Physics, KU, Wgl
Date: 24th Aug., 2016 & 5th June, 2017

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

B.Sc. PHYSICS SYLLABUS
Kakatiya University, Warangal

SEMESTER PATTERN

YEAR	SEMESTER	THEORY/ PRACTICAL	TITLE OF THE PAPER	WORK LOAD HRS/WEEK
FIRST	FIRST	Theory – I	Mechanics	4
		Practical - I	Mechanics Practicals	3
	SECOND	Theory - II	Waves and Oscillations	4
		Practical - II	Waves and Oscillations Practicals	3
SECOND	THIRD	Theory – III	Thermal Physics	4
		Practical-III	Thermal Physics Practicals	3
	FOURTH	Theory – IV	Optics	4
		Practical - IV	Optics Practicals	3
THIRD	FIFTH	Theory – V	Electromagnetic Theory	3
		Practical – V	Electromagnetic Theory Practicals	3
		Theory – VI	Atomic Physics	3
		Practical-VI	Atomic Physics Practicals	3
	SIXTH	Theory – VII	Basic Electronics	3
		Practical-VII	Basic Electronics Practicals	3
		Theory – VIII	Modern Physics	3
		Practical-VIII	Modern Physics Practicals	3

Dr. B. Venkatram Reddy
Chairman, Board of Studies in Physics, KU, Warangal

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

B.Sc. –Zoology

CBCS Credit pattern in semester system (*with effect from 2016-2017*)

Code	Semester	Course Category	Title of the Paper	No. of credits	HPW	Max. Marks			Total Marks
						I.A	End Exam	Total	
First Year									
BS104	I	DSC-1A (Theory)	Animal Diversity-Invertebrates	4	4	20	80	100	125
		DSC-1A (Practical)		1	2	-	25	25	
BS204	II	DSC-1B (Theory)	Ecology, Zoogeography and Animal Behavior	4	4	20	80	100	125
		DSC-1B (Practical)		1	2	-	25	25	
Second Year									
BS304	III	DSC-1C (Theory)	Animal Diversity-Vertebrates and Developmental Biology	4	4	20	80	100	125
		DSC-1C (Practical)		1	2	-	25	25	
BS404	IV	DSC-1D (Theory)	Cell and molecular Biology, Genetics and Evolution	4	4	20	80	100	125
		DSC-1D (Practical)		1	2	-	25	25	
Third Year									
BS503	V	DSC-1E (Theory)	Physiology and Biochemistry	3	3	15	60	75	100
		DSC-1E (Practical)		1	2	-	25	25	
BS506		DSC-1E (Theory)	Applied Zoology or Food and Nutrition or Bioinstrumentation	3	3	15	60	75	100
		DSC-1E (Practical)		1	2	-	25	25	
BS603	VI	DSC-1F (Theory)	Immunology and Animal Biotechnology	3	3	15	60	75	100
		DSC-1F (Practical)		1	2	-	25	25	
BS606		DSC-1F (Theory)	Public Health and Hygiene or Aquatic Biology or Sericulture	3	3	15	60	75	100
		DSC-1F (Practical)		1	2	-	25	25	
			Summary of credits	36	-	-	-	-	900

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda ★

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Prof. T. RAVINDER REDDY
Chairman
Board of Studies
Department of Zoology
KAKATIYA UNIVERSITY, WGL-506 009 (T.S)

KAKATIYA UNIVERSITY, WARANGAL - 506 009
B.Sc. PROGRAMME
Under CBCS System
Scheme wef A.Y: 2019-20

FIRST YEAR

SEMESTER - I

Code	Course category	Title of the Paper	No. of Credits	Hrs PW	Max. Marks			Total Marks
					Interna l Exam	End Exam	Lab	
BS101	AECC-1	Environmental Science	2	2	10	40	-	50
BS102	FL-1A	English	4	4	20	80	-	100
BS103	SL-1A	Second Language	4	4	20	80	-	100
BS104	DSC-1A	Optional - I	4	4	20	80	25	125
		Optional – I Lab	1	3				
BS105	DSC-2A	Optional– II	4	4	20	80	25	125
		Optional – II LAB	1	3				
BS106	DSC-3A	Optional – III	4	4	20	80	25	125
		Optional – III LAB	1	3				
		TOTAL:	25	-	110	440	75	625

SEMESTER – II

Code	Course category	Title of the Paper	No. of Credits	Hrs PW	Max. Marks			Total Marks
					Interna l Exam	End Exam	Lab	
BS201	AECC-2	Basic Computer Skills (Taught by: Computer Science)	2	2	10	40	-	50
BS202	FL-2B	English	4	4	20	80	-	100
BS203	SL-2B	Second Language	4	4	20	80	-	100
BS204	DSC-1B	Optional - I	4	4	20	80	25	125
		Optional – I Lab	1	3				
BS205	DSC-2B	Optional – II	4	4	20	80	25	125
		Optional – II Lab	1	3				
BS206	DSC-3B	Optional – III	4	4	20	80	25	125
		Optional – III LAB	1	3				
		TOTAL :	25	-	110	440	75	625

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY, WARANGAL - 506 009
B.Sc. PROGRAMME
Under CBCS System
Scheme wef A.Y: 2020-21

SECOND YEAR

SEMESTER - III

Code	Course category	Title of the Paper	No. of Credits	Hrs PW	Max. Marks			Total Marks
					Internal Exam	End Exam	Lab	
BS 301	SEC-1	Fundamentals of Nano Technology (Taught by : Physics)	2	2	10	40	-	50
BS 302	SEC-2	Bio Statistics (Taught by : Statistics)	2	2	10	40	-	50
BS 303	FL-3 A	English	3	3	15	60	-	75
BS 304	SL-3 B	Second Language	3	3	15	60	-	75
BS 305	DSC-1C	Optional - I	4	4	20	80	25	125
		Optional – I Lab	1	3				
BS 306	DSC-2C	Optional – II	4	4	20	80	25	125
		Optional– II Lab	1	3				
BS 307	DSC-3C	Optional – III	4	4	20	80	25	125
		Optional – III Lab	1	3				
		TOTAL:	25	-	110	440	75	625

SEMESTER - IV

Code	Course category	Title of the Paper	No. of Credits	Hrs PW	Max. Marks			Total Marks
					Internal Exam	End Exam	Lab	
BS401	SEC-3	Fundamentals of Python (Taught by: Computer Science)	2	2	10	40	-	50
BS402	SEC-4	Remedial Methods of Pollution – Drinking Water & Soil Fertility (Taught by: Chemistry)	2	2	10	40	-	50
BS403	FL-4 A	English	3	3	15	60	-	75
BS404	SL-4 B	Second Language	3	3	15	60	-	75
BS405	DSC-1D	Optional - I	4	4	20	80	25	125
		Optional – I Lab	1	3				
BS406	DSC-2D	Optional – II	4	4	20	80	25	125
		Optional – II Lab	1	3				
BS407	DSC-3D	Optional – III	4	4	20	80	25	125
		Optional– III Lab	1	3				
		TOTAL :	25	-	110	440	75	625

Vaagdevi Degree & P.G. College * Kishanpura, Hanamkonda * Warangal

G. College

KAKATIYA UNIVERSITY, WARANGAL - 506 009
B.Sc. PROGRAMME
Under CBCS System
Scheme wef A.Y: 2021-2022

THIRD YEAR

SEMESTER - V

Code	Course Type	Title of the Paper	No. of Credits	Hrs PW	Max. Marks			Total Marks
					Internal Exam	End Exam	Lab	
BS 501	FL-5 A	English	3	3	15	60	-	75
BS 502	SL-5 B	Second Language	3	3	15	60	-	75
BS 503	G.E.	Water Resources Management (Taught by: Any Science Dept.)	4	4	20	80	-	100
BS 504	DSE-1E	Optional – I	4	4	20	80	25	125
		Optional – I Lab	1	3				
BS 505	DSE-2E	Optional – II	4	4	20	80	25	125
		Optional – II Lab	1	3				
BS506	DSE-3E	Optional – III	4	4	20	80	25	125
		Optional – III Lab	1	3				
		TOTAL:	25	-	110	440	75	625

SEMESTER - VI

Code	Course Type	Title of the Paper	No. of Credits	Hrs PW	Max. Marks			Total Marks
					Internal Exam	End Exam	Lab	
BS 601	FL-6A	English	3	3	15	60	-	75
BS 602	SL-6 B	Second Language	3	3	15	60	-	75
BS 603	P.W / Optional	Optional: Public Health & Hygiene (Taught by: Zoology / Botany / Biotechnology / Micro Biology)	4	4	20	80	-	100
BS 604	DSE-1F	Optional - I	4	4	20	80	25	125
		Optional – I Lab	1	3				
BS 605	DSE-2F	Optional – II	4	4	20	80	25	125
		Optional – II Lab	1	3				
BS 606	DSE-3F	Optional – III	4	4	20	80	25	125
		Optional – III Lab	1	3				
		TOTAL:	25	-	110	440	75	625

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda. ★

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Kakatiya University Warangal 506 009

Scheme for **B.Com** Programme under **Choice Based Credit System**

With Effect from the Academic Year 2016-2017

FIRST YEAR SEMESTER-I					Max. Marks			
Code	Course Title	Course Type	HPW	Credits	Internal Marks	End Exam Marks	Lab Practical	Total Marks
BC 101	Environmental Studies	AECC-1	2	2	10	40		50
BC102	English	CC-1A	5	5	20	80		100
BC103	Second Language	CC-2A	5	5	20	80		100
BC 104	Financial Accounting - I	DSC- 1A	5	5	20	80		100
BC 105	Business Economics	DSC- 2A	5	5	20	80		100
BC 106	Business Organization	DSC -3A	4	4	20	80		100
BC107	Information Technology	DSC – 4A	3T+2P	4	20	60	20	100
SEMESTER-II								
BC 201	Gender Sensitisation	AECC-2	2	2	10	40		50
BC 202	English	CC-1B	5	5	20	80		100
BC 203	Second Language	CC-2B	5	5	20	80		100
BC 204	Financial Accounting – II	DSC -1B	5	5	20	80		100
BC 205	Managerial Economics	DSC- 2B	5	5	20	80		100
BC 206	Principle of Management	DSC- 3B	4	4	20	80		100
BC 207	Foreign Trade	DSC – 4B	4	4	20	80		100
Second YEAR SEMESTER-III								
BC301	Communication Skills	SEC-1	2	2	10	40		50
BC 302	English	CC-1C	5	5	20	80		100
BC303	Second Language	CC-2C	5	5	20	80		100
BC 304	Advanced Accounting	DSC- 1C	5	5	20	80		100
BC 305	Business Statistics – I	DSC- 2C	5	5	20	80		100
BC 306	Income Tax – I	DSC -3C	4	4	20	80		100
BC 307	Entrepreneurial Development & Business Ethics	DSC -4C	4	4	20	80		100
BC 307 (CA)only	Programming with C (CA)	DSC -4C	4	4	20	60	20	100
SEMESTER-IV								
BC 401	Soft Skills	SEC-2	2	2	10	40		50
BC 402	English	CC-1D	5	5	20	80		100
BC403	Second Language	CC-2D	5	5	20	80		100
BC 404	Corporate Accounting	DSC- 1D	5	5	20	80		100
BC 405	Business Statistics – II	DSC- 2D	5	5	20	80		100
BC 406	Income Tax – II	DSC – 3D	4	4	20	80		100
BC 407	Auditing	DSC – 4D	4	4	20	80		100

Vaagdevi Degree & P.G. College, Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

B.Com CA (CBCS) III Year V Semester				
BC501	Consumerism	SEC-3	2	2
BC502	Organisational Behaviour	GE-1	2	2
BC503	Cost Accounting	DSC	5	5
BC504	Business Law	DSC	5	5
BC505	Banking Theory & Practice	DSC	4	4
BC506	Computerised Accounting	DSC	4	4
BC507	E- Commerce	**DSE**	4	4
BC508	Objective oriented Programming with C++	**DSE**	4	4
	Total		**30**	**30**

B.Com CA (CBCS) III Year VI Semester				
BC601	Preparation of Tax Returns	SEC-4	2	2
BC602	Advertising	GE-2	2	2
BC603	Managerial Accounting	DSC	5	5
BC604	Company Law	DSC	5	5
BC605	Financial Institutions & Markets	**DSC**	4	4
BC606	Commerce Lab	DSC	4	4
BC607	Web Technologies	DSE	4	4
BC608	Relational Data Base Management	**DSE**	4	4
	Total		**30**	**30**

AECC: Ability Enhancement Compulsory Course; ***SEC:*** *Skill Enhancement Course;* ***DSC:*** *Discipline Specific Course;* ***DSE:*** *Discipline Specific Elective;* ***GE:*** *Generic Elective;*

Vaagdevi Degree & P.G. College Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

B.Com General (CBCS) III Year V Semester				
BC501	Consumerism	SEC-3	2	2
BC502	Organisational Behaviour	GE-1	2	2
BC503	Cost Accounting	DSC	5	5
BC504	Business Law	DSC	5	5
BC505	Banking Theory & Practice	DSC	4	4
BC506	Computerised Accounting	DSC	4	4
BC507	Financial Management	**DSE**	**4**	**4**
BC508	Principles of Marketing	**DSE**	**4**	**4**
	Total		**30**	**30**
B.Com General (CBCS) III Year VI Semester				
BC601	Preparation of Tax Returns	SEC-4	2	2
BC602	Advertising	GE-2	2	2
BC603	Managerial Accounting	DSC	5	5
BC604	Company Law	DSC	5	5
BC605	Financial Institutions & Markets	**DSC**	4	4
BC606	Commerce Lab	DSC	4	4
BC607	Human Resource Management	**DSE**	4	4
BC608	Tax Planning and Management	**DSE**	4	4
	Total		**30**	**30**

AECC: Ability Enhancement Compulsory Course; ***SEC:*** *Skill Enhancement Course;* ***DSC:*** *Discipline Specific Course;* ***DSE:*** *Discipline Specific Elective;* ***GE:*** *Generic Elective;*

Vaagdevi Degree & P.G. College Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

B.Com.

Restructure course of
B.Com. I Year General (T.M. & E.M.)

Part - II	Subjects / Papers	No.of. Hours per Week	Practi-cals	Theory
101.	Financial Accounting	6	30	70
102.	Business Economics	4	-	100
103.	Business Organization & Management	5	30	70
104.	Fundamentals of Information Technology	5	30	70

B.Com. I Year Computer Applications

Part - II	Subjects / Papers	No.of. Hours per Week	Practi-cals	Theory
101.	Financial Accounting	6	30	70
102.	Programming Concepts Using 'C'	4	30	70
103.	Business Organization & Management	5	30	70
104.	Fundamentals of Information Technology	5	30	70

Vaagdevi Degree & P.G. College Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

B.Com. II Year (Regular & Restructures Courses) - New General (T.M. & EM.)

Part - II	Subjects / Papers	No.of. Hours per Week	Practi-cals	Theory
201.	Advanced Accounting	6(5+1)	30	70
202.	Business Statistics	5(5+1)	30	70
203.	Financial Services - Banking & Insurance	5	30	70
204.	Taxation	4	30	70

B.Com. II Year Computer Applications

Part - II	Subjects / Papers	No.of. Hours per Week	Practi-cals	Theory
201.	Electronic Commerce	5(3+2)	30	70
202.	Business Statistics	5(4+1)	30	70
203.	Taxation	4	30	70
204.	Business Data Processing System	5	30	70

Vaagdevi Degree & P.G. College, Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

B.Com. III Year (Regular & Restructures Courses) - New General (T.M. & EM.)

Part - II	Subjects / Papers	No.of. Hours per Week	Practi-cals	Theory
301.	Business Laws	5(4+1)	30	70
302.	Corporate Accounting	5(4+1)	30	70
303.	Cost & Management Accounting	5(4+1)	30	70
304.	Auditing	5(4+1)	30	70
305.	Business Communication	5	-	100
306.	Advanced Corporate Accounting	5	30	70
307.	Advanced Management Accounting	5	-	100

B.Com. III Year Computer Applications

Part - II	Subjects / Papers	No.of. Hours per Week	Practi-cals	Theory
301.	Business Laws	5(4+1)	30	70
302.	Corporate Accounting	5(4+1)	30	70
303.	Cost & Management Accounting	5(4+1)	30	70
304.	Auditing	5(4+1)	30	70
305.	Business Communication	5	-	100
306.	Web Programming	5(3+2)	30	70
307.	Relational Database Management Systems	5(3+2)	30	70

Vaagdevi Degree & P.G. College * Kishanpura, Hanamkonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanamkonda.

B.Com. (Tax Procedures)

Syllabus (CBCS)

(w.e.f. 2019–2020)

FACULTY OF COMMERCE & BUSINESS MANAGEMENT
KAKATIYA UNIVERSITY
Vidyaranyapuri, Warangal

2019-2020

B.COM (Tax Procedures)
CBCS COURSE STRUCTURE
w.e.f. 2019-'20

Sl.No.	Code	Course Title	HPW	Credits	Exam Hrs	Marks
(1)	(2)	(3)	(5)	(6)	(7)	(8)
		SEMESTER – I				
1.	ELS1	English (First Language)	4	4		
2.	SLS1	Second Language	4	4		
3.	AECC1	Environmental Science/ Basic Computer Skills	2	2		
4.	DSC101	Financial Accounting-I	5	5	3 hrs	80U+20I
5.	DSC102	Business Organization and Management	5	5	3 hrs	80U+20I
6.	DSC103	Income Tax - I	5	5	3 hrs	80U+20I
		Total	**25**	**25**		
		SEMESTER – II				
7.	ELS2	English (First Language)	4	4		
8.	SLS2	Second Language	4	4		
9.	AECC2	Basic Computer Skills/ Environmental Science	2	2		
10.	DSC201	Financial Accounting-II	5	5	3 hrs	80U+20I
11.	DSC202	Business Laws	5	5	3 hrs	80U+20I
12.	DSC203	Income Tax - II	5	5	3 hrs	80U+20I
		Total	**25**	**25**		
		SEMESTER – III				
13.	ELS3	English (First Language)	3	3		
14.	SLS3	Second Language	3	3		
15.	SEC1 UGC Specified Course	Communication Skills Professional Skills	2	2	1 ½ hrs	40U+10I
16.	SEC2 Dept. Specified Course	Principles of Insurance/ b) Foundation of Digital Marketing & Web Design	2	2	1 ½ hrs	40U+10I
17.	DSC301	Advanced Accounting	5	5	3 hrs	80U+20I
18.	DSC302	Business Statistics-I	5	5	3 hrs	80U+20I
19.	DSC303	Assessment of Other Entities	5	5	3 hrs	80U+20I
		Total	**25**	**25**		
		SEMESTER – IV				
20.	ELS4	English (First Language)	3	3		
21.	SLS4	Second Language	3	3		
22.	SEC3 UGC Specified Course	Leadership & Management Skills Universal Human Values	2	2	1 ½ hrs	40U+10I
23.	SEC4 Dept. Specified Course	a) Practice of Life and General Insurance / Social Media Marketing Search Engine Optimization & Online Advertising	2	2	1 ½ hrs	40U+10I
24.	DSC401	Excel Foundation	5	5	3 hrs	80U+20I
25.	DSC402	Business Statistics-II	5	5	3 hrs	80U+20I
26.	DSC403	Customs Procedure & Practice	5	5	3 hrs	80U+20I
		Total	**25**	**25**		

A. Sundaram

		SEMESTER – V				
27.	ELS5	English (First Language)	3	3		
28.	SLS5	Second Language	3	3		
29.	GE	Business Economics	4	4	3 hrs	80U+20I
30.	DSE501	Cost Accounting/ Financial Planning & Performance/ International Financial Reporting-I	5	5	3 hrs	80U+20I
31.	DSE502	Computerized Accounting/ Financial Decision Making-I/ International Tax &Regulation	3T+4P/5	5	3 hrs	50T+35P + 15I/ 80U+20I
32.	DSE503	Tax Planning & Management/ Advanced Corporate Accounting/ Financial Management	5	5	3 hrs	80U+20I
		Total	**27/25**	**25**		
		SEMESTER – VI				
a)	ELS6	English (First Language)	3	3		
b)	SLS6	Second Language	3	3		
c)	PR	Research Methodology and Project Report	2T+4R	4	1 ½ hrs	40U+10I 35R+15VV
d)	DSE601	**a)** Cost Control and Management Accounting/ Financial control/ International Financial Reporting-II	5	5	3 hrs	80U+20I
e)	DSE602	Theory and Practice of GST/ Financial Decision Making-II / InternationalAuditing	3T+4P/5	5	3 hrs	50T+35P + 15I/ 80U+20I
f)	DSE603	International Tax & Regulation/ Corporate Governance/ Investment Management	5	5	3 hrs	80U+20I
		Total	**29/27**	**25**		
		GRAND TOTAL	**156/152**	**150**		

ELS: English Language Skill; **SLS:** Second Language Skill; **AEC:** Ability Enhancement Compulsory Course; ***SEC:*** *Skill Enhancement Course;* ***DSC:*** *Discipline Specific Course;* ***DSE:*** *Discipline Specific Elective;* ***GE:*** *Generic Elective;* ***T:*** *Theory;* ***P:*** *Practical;* ***I:*** *Internal Exam* ***U:*** *University Exam:* ***PR:*** *Project Report;* ***VV:*** *Viva-Voce Examination.*

Note: If a student should opt for "a" in SEC in III semester, the student has to opt for "a" only in IV semester and so is the case with "b" and "c". In the case of DSE also the rule applies.

SUMMARY OF CREDITS

Sl. No.	Course Category	No. of Courses	Credits Per Course	Credits
1	English Language	6	4/3	20
2	Second Language	6	4/3	20
3	AECC	2	2	4
4	SEC	4	2	8
5	GE	1	4	4
6	Project Report	1	4	4
7	DSC	12	5	60
8	DSE	6	5	30
	TOTAL	38		150
	Commerce	24		106
CREDITS UNDER NON-CGPA		NSS/NCC/Sports/Extra Curricular	Up to 6 (2 in each year)	
		Summer Internship	Up to 4 (2 in each after I & II years)	

B.Com.

(GENERAL)

(CBCS)

FACULTY OF COMMERCE & BUSINESS MANAGEMENT
KAKATIYA UNIVERSITY
Vidyaranyapuri, Warangal

2019-2020

B.COM (GENERAL)
CBCS COURSE STRUCTURE

Sl.No.	*Code*	*Course Title*	*HPW*	*Credits*	*Exam Hrs*	*Marks*
(1)	(2)	(3)	(5)	(6)	(7)	(8)
		I Year I Semester				
1.	ELS1	English (First Language)	4	4		
2.	SLS1	Second Language	4	4		
3.	AECC1	Environmental Science/ Basic Computer Skills	2	2		
4.	DSC101	Financial Accounting-I	5	5	3 hrs	80U+20I
5.	DSC102	Business Organization and Management	5	5	3 hrs	80U+20I
6.	DSC103	Foreign Trade	5	5	3 hrs	80U+20I
		Total	**25**	**25**		
		I Year II Semester				
7.	ELS2	English (First Language)	4	4		
8.	SLS2	Second Language	4	4		
9.	AECC2	Basic Computer Skills/ Environmental Science	2	2		
10.	DSC201	Financial Accounting-II	5	5	3 hrs	80U+20I
11.	DSC202	Business Laws	5	5	3 hrs	80U+20I
12.	DSC203	Banking and Financial Services	5	5	3 hrs	80U+20I
		Total	**25**	**25**		
		II Year I Semester				
13.	ELS3	English (First Language)	3	3		
14.	SLS3	Second Language	3	3		
15.	SEC1	Principles of Insurance/ Foundation of Digital Marketing/ Fundamentals of Business Analytics	2	2	1 ½ hrs	40U+10I
16.	SEC2	Practice of Life Insurance/ Web Design & Analytics/ Application of Business Analytics	2	2	1 ½ hrs	40U+10I
17.	DSC301	Advanced Accounting	5	5	3 hrs	80U+20I
18.	DSC302	Business Statistics-I	5	5	3 hrs	80U+20I
19.	DSC303	Financial Institutions and Markets	5	5	3 hrs	80U+20I
		Total	**25**	**25**		

A. Srinivasulu

Sl.No.	Code	Course Title	HPW	Credits	Exam Hrs	Marks
(1)	(2)	(3)	(5)	(6)	(7)	(8)
		II Year II Semester				
20.	ELS4	English (First Language)	3	3		
21.	SLS4	Second Language	3	3		
22.	SEC3	Practice of General Insurance/ Social Media Marketing Business Intelligence	2	2	1 ½ hrs	40U+10I
23.	SEC4	a)Regulation of Insurance Business/ b)Search Engine Optimization & Online Advertising c)Data Visualisation&Storytelling	2	2	1 ½ hrs	40U+10I
24.	DSC401	Income Tax/Excel Foundation	5	5	3 hrs	80U+20I
25.	DSC402	Business Statistics-II	5	5	3 hrs	80U+20I
26.	DSC403	Corporate Accounting	5	5	3 hrs	80U+20I
		Total	**25**	**25**		
		III Year I Semester				
27.	ELS5	English (First Language)	3	3		
28.	SLS5	Second Language	3	3		
29.	GE	Business Economics	4	4	3 hrs	80U+20I
30.	DSE501	Cost Accounting/ Financial Planning & Performance/ Financial Reporting-I	5	5	3 hrs	80U+20I
31.	DSE502	Computerized Accounting/ Financial Decision Making-I/ International Tax& Regulation	3T+4P/5	5	3 hrs	50T+35P + 15I/ 80U+20I
32.	DSE503	Auditing/ AdvancedCorporate Accounting/ Financial Management	5	5	3 hrs	80U+20I
		Total	**27/25**	**25**		
		III Year II Semester				
33.	ELS6	English (First Language)	3	3		
34.	SLS6	Second Language	3	3		
35.	PR	Research Methodology and Project Report	2T+4R	4	1 ½ hrs	40U+10I +15V V
36.	DSE601	a) Cost Control and Management Accounting/ Financial control/ Financial Reporting-II	5	5	3 hrs	80U+20I
37.	DSE602	Theory and Practice of GST/ Financial Decision Making-II / InternationalAuditing	3T+4P/5	5	3 hrs	50T+35P + 15I/ 80U+20I
38.	DSE603	Accounting Standards/ Corporate Governance/ Investment management	5	5	3 hrs	80U+20I
		Total	**29/27**	**25**		
		GRAND TOTAL	**156/152**	**150**		

A. Sudhakar

ELS: English Language Skill; **SLS:** Second Language Skill; **AEC:** Ability Enhancement Compulsory Course; ***SEC:*** *Skill Enhancement Course;* ***DSC:*** *Discipline Specific Course;* ***DSE:*** *Discipline Specific Elective;* ***GE:*** *Generic Elective;* ***T:*** *Theory;* ***P:*** *Practical;* ***I:*** *Internal Exam* ***U:*** *University Exam:* ***PR:*** *Project Report;* ***VV:*** *Viva- Voce Examination.*

Note: If a student should opt for "a" in SEC in III semester, the student has to opt for "a" only in IV semester and so is the case with "b" and "c". In the case of DSE also the rule applies.

SUMMARY OF CREDITS

Sl. No.	Course Category	No. of Courses	Credits Per Course	Credits
1	English Language	6	4/3	20
2	Second Language	6	4/3	20
3	AECC	2	2	4
4	SEC	4	2	8
5	GE	1	4	4
6	Project Report	1	4	4
7	DSC	12	5	60
8	DSE	6	5	30
	TOTAL	38		150
	Commerce	24		106
CREDITS UNDER NON-CGPA		SS/NCC/Sports/Extra Curricular	Up to 6 (2 in each year)	
		Summer Internship	Up to 4 (2 in each after I & II years)	

Prof. K. Raji Reddy	Prof. P. Varalaxmi	Dr. K. Rajender
Dr. S. Narasimha Chary	Mr. M. Somaiah	Dr. S. Narayana Swamy
Dr. Ramavath Ravi	Dr. D. Thiruvengala Chary	Dr. G. Shashidhar Rao

B.Com.

(Computer Applications)

(CBCS)

FACULTY OF COMMERCE & BUSINESS MANAGEMENT
KAKATIYA UNIVERSITY
Vidyaranyapuri, Warangal

2019-2020

Faculty of Commerce & Business Management, Kakatiya University, Warangal

B.COM (Computer Applications)

CBCS COURSE STRUCTURE

Sl.No.	Code	Course Title	HPW	Credits	Exam Hrs	Marks
(1)	(2)	(3)	(5)	(6)	(7)	(8)
		I Year I Semester				
1.	ELS1	English (First Language)	4	4		
2.	SLS1	Second Language	4	4		
3.	AECC1	a)Environmental Science/ b)Basic Computer Skills	2	2	1 ½ hrs	40U+10I
4.	DSC101	Financial Accounting–I	5	5	3 hrs	80U+20I
5.	DSC102	Business Organization and Management	5	5	3 hrs	80U+20I
6.	DSC103	Fundamentals of Information Technology	3T+4P	5	1 ½ hrs	50T+35P+15I
		Total	**27**	**25**		
		I Year II Semester				
7.	ELS2	English (First Language)	4	4		
8.	SLS2	Second Language	4	4		
9.	AECC2	a)Basic Computer Skills/ b)Environmental Science	2	2	1 ½ hrs	40U+10I
10.	DSC201	Financial Accounting–II	5	5	3 hrs	80U+20I
11.	DSC202	Business Laws	5	5	3 hrs	80U+20I
12.	DSC203	Programming with C & C++	3T+4P	5	1 ½ hrs	50T+35P+15I
		Total	**27**	**25**		
		II Year I Semester				
13.	ELS3	English (First Language)	3	3		
14.	SLS3	Second Language	3	3		
15.	SEC1	a)Principles of Insurance/ b)Foundation of Digital Marketing/ c)Fundamentals of Business Analytics	2	2	1 ½ hrs	40U+10I
16.	SEC2	a)Practice of Life Insurance/ b)Web Design & Analytics/ c)Application of Business Analytics	2	2	1 ½ hrs	40U+10I
17.	DSC301	Advanced Accounting	5	5	3 hrs	80U+20I
18.	DSC302	Business Statistics-I	5	5	3 hrs	80U+20I
19.	DSC303	Relational Database Management System	3T+4P	5	1 ½ hrs	50T+35P+15I
		Total	**27**	**25**		

Vaagdevi Degree & P.G. College, Kishanpura, Hanumakonda

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda

		II Year II Semester				
20.	ELS4	English (First Language)	3	3		
21.	SLS4	Second Language	3	3		
22.	SEC3	a)Practice of General Insurance/ b)Social Media Marketing c)Business Intelligence	2	2	1 ½ hrs	40U+10I
23.	SEC4	a)Regulation of Insurance Business/ b)Search Engine Optimization & Online Advertising c)Data Visualisation & Storytelling	2	2	1 ½ hrs	40U+10I
24.	DSC401	Income Tax/Excel Foundation	5	5	3 hrs	80U+20I
25.	DSC402	Business Statistics-II	5	5	3 hrs	80U+20I
26.	DSC403	Web Technologies	3T+4P	5	1 ½ hrs	50T+35P+15I
		Total	27	25		
		III Year I Semester				
27.	ELS5	English (First Language)	3	3		
28.	SLS5	Second Language	3	3		
29.	GE	a)Business Economics / b] Advanced Aspects of Income Tax	4	4	3 hrs	80U+20I
30.	DSE501	a) Cost Accounting/ b) Financial Planning & Performance/ c) International Financial Reporting-I	5	5	3 hrs	80U+20I
31.	DSE502	a) Computerized Accounting/ b) Financial Decision Making-I/ c) International Tax &Regulation	3T+4P/ 5	5	3 hrs	50T+35P+ 15I/ 80U+20I
32.	DSE503	a) Management Information Systems/ b) Ecommerce/c) Mobile Applications	3T+4P	5	1 ½ hrs	50T+35P+ 15I
		Total	29/27	25		
		III Year II Semester				
33.	ELS6	English (First Language)	3	3		
34.	SLS6	Second Language	3	3		
35.	PR	Research Methodology and Project Report	2T+4R	4	1 ½ hrs	40U+10I 35R+15VV
36.	DSE601	a) Cost Control and Management Accounting/ b) Financial control/ c) International Financial Reporting-II	5	5	3 hrs	80U+20I
37.	DSE602	a) Theory and Practice of GST/ b) Financial Decision Making-II / c) International Auditing	3T+4P/ 5	5	3 hrs	50T+35P+ 15I/ 80U+20I
38.	DSE603	a) Multimedia Systems/ b) Cyber Security/c) Data Analytics	3T+4P	5	1 ½ hrs	50T+35P+ 15I
		Total	31/29	25		
		GRAND TOTAL	168/164	150		

ELS: English Language Skill; **SLS**: Second Language Skill; **AEC**: Ability Enhancement Compulsory Course; *SEC: Skill Enhancement Course; DSC: Discipline Specific Course; DSE: Discipline Specific Elective; GE: Generic Elective; T: Theory; P: Practical; I: Internal Exam U: University Exam; PR: Project Report; VV: Viva- Voce Examination.*

Note: If a student should opt for "a" in SEC in III semester, the student has to opt for "a" only in IV semester and so is the case with "b" and "c". In the case of DSE also the rule applies.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

SUMMARY OF CREDITS

Sl. No.	Course Category	No. of Courses	Credits Per Course	Credits
1	English Language	6	4/3	20
2	Second Language	6	4/3	20
3	AECC	2	2	4
4	SEC	4	2	8
5	GE	1	4	4
6	Project Report	1	4	4
7	DSC	12	5	60
8	DSE	6	5	30
	TOTAL	40		150
	Commerce	24		106
CREDITS UNDER NON-CGPA		NSS/NCC/Sports/ Extra Curricular	Up to 6 (2 in each year)	
		Summer Internship	Up to 4 (2 in each after I & II years)	

Prof. K. Raji Reddy	Prof. P. Varalaxmi	Dr. K. Rajender
Dr. S. Narasimha Chary	Mr. M. Somaiah	Dr. S. Narayana Swamy
Dr. Ramavath Ravi	Dr. D. Thiruvengala Chary	Dr. G. Shashidhar Rao

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Faculty of Commerce & Business Management, Kakatiya University

B.Com. (Business Analytics)

Syllabus (CBCS)

(w.e.f. 2020–2021)

FACULTY OF COMMERCE & BUSINESS MANAGEMENT
KAKATIYA UNIVERSITY
Vidyaranyapuri, Warangal

2019-2020

B.COM (Business Analytics)
CBCS COURSE STRUCTURE
w.e.f. 2020-'21

Sl.No.	Code	Course Title	HPW	Credits	Exam Hrs	Marks
(1)	(2)	(3)	(5)	(6)	(7)	(8)
		SEMESTER – I				
1.	ELS1	English (First Language)	4	4		
2.	SLS1	Second Language	4	4		
3.	AECC1	a)Environmental Science/ b)Basic Computer Skills	2	2		
4.	DSC101	Financial Accounting-I	5	5	3 hrs	80U+20I
5.	DSC102	Business Organization and Management	5	5	3 hrs	80U+20I
6.	DSC103	Data-driven Decision Making	5	5	3 hrs	80U+20I
		Total	**25**	**25**		
		SEMESTER – II				
7.	ELS2	English (First Language)	4	4		
8.	SLS2	Second Language	4	4		
9.	AECC2	a)Basic Computer Skills/ b)Environmental Science	2	2		
10.	DSC201	Financial Accounting-II	5	5	3 hrs	80U+20I
11.	DSC202	Business Laws	5	5	3 hrs	80U+20I
12.	DSC203	Data Analytics Essentials	5	5	3 hrs	80U+20I
		Total	**25**	**25**		
		SEMESTER – III				
13.	ELS3	English (First Language)	3	3		
14.	SLS3	Second Language	3	3		
15.	SEC1	a)Principles of Insurance/ b)Foundation of Digital Marketing/ c)Fundamentals of Business Analytics	2	2	1 ½ hrs	40U+10I
16.	SEC2	a)Practice of Life Insurance/ b)Web Design & Analytics/ c)Application of Business Analytics	2	2	1 ½ hrs	40U+10I
17.	DSC301	Advanced Accounting	5	5	3 hrs	80U+20I
18.	DSC302	Business Statistics-I	5	5	3 hrs	80U+20I
19.	DSC303	Data Analytics Modeling	5	5	3 hrs	80U+20I
		Total	**25**	**25**		
		SEMESTER – IV				
20.	ELS4	English (First Language)	3	3		
21.	SLS4	Second Language	3	3		
22.	SEC3	a)Practice of General Insurance/ b)Social Media Marketing c)Business Intelligence	2	2	1 ½ hrs	40U+10I
23.	SEC4	a)Regulation of Insurance Business/ b)Search Engine Optimization & Online Advertising c)Data Visualisation &Storytelling	2	2	1 ½ hrs	40U+10I
24.	DSC401	Income Tax/Excel Foundation	5	5	3 hrs	80U+20I
25.	DSC402	Business Statistics-II	5	5	3 hrs	80U+20I
26.	DSC403	Forecasting & Predictive Analytics	5	5	3 hrs	80U+20I
		Total	**25**	**25**		

Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

		SEMESTER – V				
27.	ELS5	English (First Language)	3	3		
28.	SLS5	Second Language	3	3		
29.	GE	a)Business Economics/ b)Advanced Aspects of Income Tax	4	4	3 hrs	80U+20I
30.	DSE501	a) Cost Accounting/ b) Financial Planning & Performance/ c) International Financial Reporting-I	5	5	3 hrs	80U+20I
31.	DSE502	a) Computerized Accounting/ b) Financial Decision Making-I/ c) International Tax & Regulation	3T+4P/5	5	3 hrs	50T+35P + 15I/ 80U+20I
32.	DSE503	a) Advanced Data Visualization/ b) Advanced Corporate Accounting/ c) Financial Management	5	5	3 hrs	80U+20I
		Total	**27/25**	**25**		
		SEMESTER – VI				
33.	ELS6	English (First Language)	3	3		
34.	SLS6	Second Language	3	3		
35.	PR	Research Methodology and Project Report	2T+4R	4	1 ½ hrs	40U+10I 35R+15VV
36.	DSE601	a) Cost Control and Management Accounting/ b) Financial control/ c)International Financial Reporting-II	5	5	3 hrs	80U+20I
37.	DSE602	a) Theory and Practice of GST/ b) Financial Decision Making-II / c) International Auditing	3T+4P/5	5	3 hrs	50T+35P + 15I/ 80U+20I
38.	DSE603	a) Business Applications of Emerging Technologies/ b) Corporate Governance/ c) Investment management	5	5	3 hrs	80U+20I
		Total	**29/27**	**25**		
		GRAND TOTAL	**156/152**	**150**		

ELS: English Language Skill; **SLS**: Second Language Skill; **AEC**: Ability Enhancement Compulsory Course; ***SEC**: Skill Enhancement Course; **DSC**: Discipline Specific Course; **DSE**: Discipline Specific Elective; **GE**: Generic Elective; **T**: Theory; **P**: Practical; **I**: Internal Exam **U**: University Exam; **PR**: Project Report; **VV**: Viva-Voce Examination.*

Note: If a student should opt for "a" in SEC in III semester, the student has to opt for "a" only in IV semester and sSo is the case with "b" and "c". In the case of DSE also the rule applies.

SUMMARY OF CREDITS

Sl. No.	Course Category	No. of Courses	Credits Per Course	Credits
1	English Language	6	4/3	20
2	Modern Language	6	4/3	20
3	AEC	2	2	4
4	SEC	4	2	8
5	GE	1	4	4
6	Project Report	1	4	4
7	DSC	12	5	60
8	DSE	6	5	30
	TOTAL	38		150
	Commerce	24		106
CREDITS UNDER NON-CGPA		NSS/NCC/Sports/Extra Curricular	Up to 6 (2 in each year)	
		Summer Internship	Up to 4 (2 in each after I & II years)	

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

BBA
(CBCS)

FACULTY OF COMMERCE & BUSINESS MANAGEMENT
KAKATIYA UNIVERSITY
Vidyaranyapuri, Warangal

2019-2020

BBA Course Structure and Syllabus
As per CBCS Guidelines
with Effect from 2019 - 2020

I YEAR I SEMESTER

Course Code	*Course Title*	*HPW*	*Credits*	*Exam Hrs.*	*Marks*
ELS 1	English (First Language) - 1	**4**	**4**		
MIL 1	MIL – 1	**4**	**4**		
AECC 1	Environmental Science	**2**	**2**		
DSC 101	Principles of Management	**5**	**5**	**3 Hrs.**	**80 U + 20 I**
DSC 102	Basics of Marketing	**5**	**5**	**3 Hrs.**	**80 U + 20 I**
DSC 103	Business Economics	**5**	**5**	**3 Hrs.**	**80 U + 20 I**
	Total Semester Credits	**25**	**25**		

I YEAR II SEMESTER

Course Code	*Course Title*	*HPW*	*Credits*	*Exam Hrs.*	*Marks*
ELS 2	English (First Language) - 2	**4**	**4**		
MIL 2	MIL – 2	**4**	**4**		
AECC 2	Basic Computer Skills	**2**	**2**		
DSC 201	Organisational Behaviour	**5**	**5**	**3 Hrs.**	**80 U + 20 I**
DSC 202	Business Statistics	**5**	**5**	**3 Hrs.**	**80 U + 20 I**
DSC 203	Financial Accounting	**5**	**5**	**3 Hrs.**	**80 U + 20 I**
	Total Semester Credits	**25**	**25**		

II YEAR I SEMESTER

Course Code	*Course Title*	*HPW*	*Credits*	*Exam Hrs.*	*Marks*
ELS 3	English (First Language) - 3	**3**	**3**		
MIL 3	MIL – 3	**3**	**3**		
SEC 1	a) Personality Development - I b) Advanced Computers	**2**	**2**	**1 ½ Hrs.**	**40 U + 10 I**
SEC 2	a) Basic Quality Management b) Business Policy and Strategy	**2**	**2**	**1 ½ Hrs.**	**40 U + 10 I**
DSC 301	Human Resource Management	**5**	**5**	**3 Hrs.**	**80 U + 20 I**
DSC 302	Information Technology for Business	**4 T+1 P**	**5**	**3 Hrs.**	**60 U + 20 P + 20 I**
DSC 303	Financial Management	**5**	**5**	**3 Hrs.**	**80 U + 20 I**
	Total Semester Credits → 24/25		**25**		

II YEAR II SEMESTER

Course Code	*Course Title*	*HPW*	*Credits*	*Exam Hrs.*	*Marks*
ELS 4	English (First Language) - 4	**3**	**3**		
MIL 4	MIL – 4	**3**	**3**		
SEC 3	a) Business Correspondence and Communication b) Personality Development - II	**2**	**2**	**1 ½ Hrs.**	**40 U + 10 I**
SEC 4	a) Start Up Management b) Business Intelligence & Data Visualization	**2**	**2**	**1 ½ Hrs.**	**40 U + 10 I**
DSC 401	Business Law and Ethics	**5**	**5**	**3 Hrs.**	**80 U + 20 I**
DSC 402	Market Research	**5**	**5**	**3 Hrs.**	**80 U + 20 I**
DSC 403	Management Science	**5**	**5**	**3 Hrs.**	**80 U + 20 I**
	Total Semester Credits	**25**	**25**		

III YEAR I SEMESTER

Course Code	*Course Title*	*HPW*	*Credits*	*Exam Hrs.*	*Marks*
ELS 5	English (First Language) - 5	**3**	**3**		
MIL 5	MIL – 5	**3**	**3**		
GE -1	Mobile Commerce	**4**	**4**	**3 Hrs.**	**60 U + 20 I**
DSE 501	a. Financial Markets and Services (F) b. Brand Management (M) c. Organization Development (HR)	**5**	**5**	**3 Hrs.**	**80 U + 20 I**
DSE 502	a. Analysis of Investment in Financial Assets (F) b. Retail Management (M) c. Performance Appraisal and Counseling(HR)	**5**	**5**	**3 Hrs.**	**80 U + 20 I**
DSE 503	a. Insurance Services (F) b. Customer Relationship Management (M) c. Compensation Management (HR)	**5**	**5**	**3 Hrs.**	**80 U + 20 I**
	Total Semester Credits	**24/25**	**25**		

III YEAR II SEMESTER

Course Code	*Course Title*	*HPW*	*Credits*	*Exam Hrs.*	*Marks*
ELS 6	English (First Language) – 6	**3**	**3**		
MIL 6	MIL – 6	**3**	**3**		
GE -2	Business Analytics	**4**	**3**	**4 Hrs.**	**60 U + 20 I**
DSE 601	a. Banking (F) b. Buyer Behaviour (M) c. Leadership and Change Management (HR)	**5**	**5**	**3 Hrs.**	**80 U + 20 I**
DSE 602	a. Risk Analysis And Management(F) b. Advertising and Sales Promotion (M) c. Talent and Knowledge Management (HR)	**5**	**5**	**3 Hrs.**	**80 U + 20 I**
DSE 603	a. International Finance (F) b. Rural Marketing (M) c. Employees Relations (HR)	**5**	**5**	**3 Hrs.**	**80 U + 20 I**
DSE 604	Project Report & Viva-Voce	**4**	**4**	**Viva**	**Grade**
	Total Semester Credits	**29**	**29**		
	Total All Semester Credits → 148/150		**150**		

ELS: *English Language Skill****; SLS****: Second Language Skill;* ***AECC: A****bility* ***E****nhancement* ***C****ompulsory* ***C****ourse;* ***SEC: S****kill* ***E****nhancement* ***C****ourse;* ***DSC: D****iscipline* ***S****pecific* ***C****ourse;* ***DSE: D****iscipline* ***S****pecific* ***E****lective;* ***GE: G****eneric* ***E****lective;* ***T****: Theory;* ***P****: Practical****; I****: Internal Exam;* ***U: U****niversity Exam;* ***PR****: Project* ***R****eport;* ***VV****: Viva-Voce Examination;* ***F:*** *Finance;* ***M:*** *Mar*keting; ***HR:*** *Human Resource Management.*

Note: If a student should opt for "a" in SEC in III semester, the student has to opt for "a" only in IV semester and So is the case with "b" and "c". In the case of DSE also the rule applies.

SUMMARY OF CREDITS

Sl. No.	Course Category	No. of Courses	Credits Per Course	Credits
1	English Language	6	4/3	20
2.	MIL	6	4/3	20
3.	AECC	2	2	4
4.	**SEC**	**4**	**2**	**8**
5.	**GE**	**2**	**4**	**8**
6.	**Project Report & Viva-voce**	**1**	**4**	**4**
7.	**DSC**	**12**	**5**	**60**
8.	**DSE**	**6**	**5**	**30**
	Total	**39**		**154**
	Management	**21**		**102**
Credits Under NON – CGPA		**NSS/NCC/Sports/Extra Curricular**	**Up to 6 (2 in each year)**	
		Summer Internship	**Up to 4 (2 in each after I & II years)**	

Note :

1) IT lab will be evaluated through a practical exam.
2) At the end of third year there will be a comprehensive viva-voce on subjects & project undertaken during six semester and evaluation of project report.
3) Grade (A/B/CD) is awarded to both the project viva-voce and project report as per University Norms.

KAKATIYA UNIVERSITY
WARANGAL - 506009

Bachelor of Computer Application (BCA) Syllabus

Under the

CHOICE BASED CREDIT SYSTEM
(With effect from 2016-17)

DEPARTMENT OF COMPUTER SCIENCE

University College, KU, Warangal-506009

BCA I YEAR I SEMESTER

Code	Subject	Workload Per Week	Marks			Credit
			External	Internal	Total	
BCA11	General English- I	T(4)	70	30	100	4
BCA12	Fundamentals Of Information Technology	T (4)	70	30	100	4
BCA13	Programming with C	T (4)	70	30	100	4
BCA14	Discrete Mathematics	T (4)	70	30	100	4
BCA15	Management Information Systems	T (4)	70	30	100	4
BCA16	Fundamentals Of Information Technology Lab	L (4)	50	0	50	2
BCA17	Programming with C Lab	L (4)	50	0	50	2
				Total credits		24

BCA I YEAR II SEMESTER

Code	Subject	Workload Per Week	Marks			Credit
			External	Internal	Total	
BCA21	General English - II	T (4)	70	30	100	4
BCA22	Object Oriented Programming With C++	T (4)	70	30	100	4
BCA23	Probability And Statistics	T (4)	70	30	100	4
BCA24	Operating System	T (4)	70	30	100	4
BCA25	Computer Organization	T (4)	70	30	100	4
BCA26	Object Oriented Programming With C++ Lab	L (4)	50	0	50	2
BCA27	Operating system - lab	L (4)	50	0	50	2
				Total credits		24

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanamkonda

Vaagdevi Degree & P.G. College
Kishanpura, Hanamkonda

BCA II YEAR I SEMESTER

Code	Subject	Workload Per Week	Marks			Credit
			External	Internal	Total	
BCA31	Data Structures With C++	T (4)	70	30	100	4
BCA32	Operation Research	T (4)	70	30	100	4
BCA33	Web Programming	T (4)	70	30	100	4
BCA34	Software Engineering	T (4)	70	30	100	4
BCA35	Computer Networks	T (4)	70	30	100	4
BCA36	Data Structures - Lab	L (4)	50	0	50	2
BCA37	Web Programming - Lab	L (4)	50	0	50	2
				Total credits		24

BCA II YEAR II SEMESTER

Code	Subject	Workload Per Week	Marks			Credit
			External	Internal	Total	
BCA41	Design And Analysis Of Algorithms	T (4)	70	30	100	4
BCA42	Database Management Systems	T (4)	70	30	100	4
BCA43	Java Programming	T (4)	70	30	100	4
BCA44	System Approach To Management	T (4)	70	30	100	4
BCA45	Computer Graphics	T (4)	70	30	100	4
BCA46	Database Management Systems - Lab	L (4)	50	0	50	2
BCA47	Java Programming - Lab	L (4)	50	0	50	2
				Total credits		24

Vaagdevi Degree & P.G. College * Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

BCA III YEAR I SEMESTER

Code	Subject	Workload Per Week	Marks			Credit
			External	Internal	Total	
BCA51	Multimedia Systems And Applications	T (4)	70	30	100	4
BCA52	Object Oriented Design in UML	T (4)	70	30	100	4
BCA53	Visual Programming	T (4)	70	30	100	4
BCA54	E-Commerce Technologies	T (4)	70	30	100	4
BCA55	Cryptography and Network Security	T (4)	70	30	100	4
BCA56	Multimedia Systems And Applications- lab	L (4)	50	0	50	2
BCA57	Visual Programming- Lab	L (4)	50	0	50	2
				Total credits		24

BCA III YEAR II SEMESTER

Code	Subject		Workload Per Week	Marks			Credit
				External	Internal	Total	
BCA61	Elective A1/B1/C1		T(4)	70	30	100	4
	A1	Artificial Intelligence					
	B1	Theory of Computation					
	C1	Digital Image Processing					
BCA62	Elective A2/B2/C2		T(4)	70	30	100	4
	A2	Data mining					
	B2	Android Programming					
	C2	Unix programming					
BCA63	Major project (including Seminars)			300	100	400	16
					Total credits		24

Vaagdevi Degree & P.G. College * Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

BCA I YEAR I SEMESTER

Code	Subject	Workload Per Week	Marks			Credit
			External	Internal	Total	
BCA11	General English- I	T(4)	70	30	100	4
BCA12	Fundamentals Of Information Technology	T (4)	70	30	100	4
BCA13	Programming with C	T (4)	70	30	100	4
BCA14	Discrete Mathematics	T (4)	70	30	100	4
BCA15	Management Information Systems	T (4)	70	30	100	4
BCA16	Fundamentals Of Information Technology Lab	L (4)	50	0	50	2
BCA17	Programming with C Lab	L (4)	50	0	50	2
				Total credits		24

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

GENERAL ENGLISH I

LESSON ONE (SHORT FICTION)	**TEXT**	**OLD MAN AT THE BRIDGE by Ernest Hemmingway**
	PRONUNICIATION	CONSONANTAL SOUNDS
	GRAMMAR	ARTICLES
	VOCABULARY	SYNONYMS
	SPELLING	PICK OUT THE WRONGLY-SPELT WORDS
	CONVERSATIONS	ICE-BREAKING
	READING PASSAGE	RUDRAMA DEVI
	LIFE SKILLS	SELF-AWARENESS
LESSON TWO (PROSE)	**TEXT**	**INDIA AND DEMOCRACY by Dr. B.R. AMBEDKAR**
	PRONUNICIATION	VOWEL SOUNDS:
	GRAMMAR	PREPOSITIONS
	VOCABULARY	ANTONYMS
	SPELLING	USE OF 'UN' OR 'DIS'
	CONVERSATIONS	INTRODUCING
	READING PASSAGE	MEDARAM JATARA
	LIFE SKILLS	EMPATHY
LESSON THREE (POETRY)	**TEXT**	**THE SCRIBE by WALTER DE LA MARE**
	PRONUNICIATION	VOWEL SOUNDS: DIPHTHONGS
	GRAMMAR	TENSES
	VOCABULARY	HOMOPHONES & HOMONYMS
	SPELLING	USE OF 'TION' OR 'SION'
	CONVERSATIONS	DESCRIBING A PERSON/PLACE/EVENT
	READING PASSAGE	KALOJI
	LIFE SKILLS	CRITICAL THINKING & CREATIVE
LESSON FOUR (DRAMA)	**TEXT**	**THE NEVER-NEVER NEST by CEDRIC MOUNT .**
	PRONUNICIATION	PLOSIVES
	GRAMMAR	FRAMING QUESTIONS
	VOCABULARY	ONE-WORD SUBSTITUTES
	SPELLING	USE OF 'MENT'
	CONVERSATIONS	GIVING DIRECTIONS
	READING PASSAGE	KUNTALA WATERFALL
	LIFE SKILLS	DECISION-MAKING SKILL

Vaagdevi Degree & P.G. College * Kishanpura, Hanumakonda. *

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda

KAKATIYA UNIVERSITY, WARANGAL - 506 009
B.Sc. PROGRAMME
Under CBCS System
Scheme wef A.Y: 2019-20

FIRST YEAR

SEMESTER - I

Code	Course category	Title of the Paper	No. of Credits	Hrs PW	Max. Marks			Total Marks
					Internal Exam	End Exam	Lab	
BS101	AECC-1	Environmental Science	2	2	10	40	-	50
BS102	FL-1A	English	4	4	20	80	-	100
BS103	SL-1A	Second Language	4	4	20	80	-	100
BS104	DSC-1A	Optional - I	4	4	20	80	25	125
		Optional – I Lab	1	3				
BS105	DSC-2A	Optional– II	4	4	20	80	25	125
		Optional – II LAB	1	3				
BS106	DSC-3A	Optional – III	4	4	20	80	25	125
		Optional – III LAB	1	3				
		TOTAL:	25	-	110	440	75	625

SEMESTER – II

Code	Course category	Title of the Paper	No. of Credits	Hrs PW	Max. Marks			Total Marks
					Internal Exam	End Exam	Lab	
BS201	AECC-2	Basic Computer Skills (Taught by: Computer Science)	2	2	10	40	-	50
BS202	FL-2B	English	4	4	20	80	-	100
BS203	SL-2B	Second Language	4	4	20	80	-	100
BS204	DSC-1B	Optional - I	4	4	20	80	25	125
		Optional – I Lab	1	3				
BS205	DSC-2B	Optional – II	4	4	20	80	25	125
		Optional – II Lab	1	3				
BS206	DSC-3B	Optional – III	4	4	20	80	25	125
		Optional – III LAB	1	3				
		TOTAL :	25	-	110	440	75	625

KAKATIYA UNIVERSITY, WARANGAL - 506 009
B.Sc. PROGRAMME
Under CBCS System
Scheme wef A.Y: 2020-21

SECOND YEAR

SEMESTER - III

Code	Course category	Title of the Paper	No. of Credits	Hrs PW	Max. Marks			Total Marks
					Internal Exam	End Exam	Lab	
BS 301	SEC-1	Fundamentals of Nano Technology (Taught by : Physics)	2	2	10	40	-	50
BS 302	SEC-2	Bio Statistics (Taught by : Statistics)	2	2	10	40	-	50
BS 303	FL-3 A	English	3	3	15	60	-	75
BS 304	SL-3 B	Second Language	3	3	15	60	-	75
BS 305	DSC-1C	Optional - I	4	4	20	80	25	125
		Optional – I Lab	1	3				
BS 306	DSC-2C	Optional – II	4	4	20	80	25	125
		Optional– II Lab	1	3				
BS 307	DSC-3C	Optional – III	4	4	20	80	25	125
		Optional – III Lab	1	3				
		TOTAL:	25	-	110	440	75	625

SEMESTER - IV

Code	Course category	Title of the Paper	No. of Credits	Hrs PW	Max. Marks			Total Marks
					Internal Exam	End Exam	Lab	
BS401	SEC-3	Fundamentals of Python (Taught by: Computer Science)	2	2	10	40	-	50
BS402	SEC-4	Remedial Methods of Pollution – Drinking Water & Soil Fertility (Taught by: Chemistry)	2	2	10	40	-	50
BS403	FL-4 A	English	3	3	15	60	-	75
BS404	SL-4 B	Second Language	3	3	15	60	-	75
BS405	DSC-1D	Optional - I	4	4	20	80	25	125
		Optional – I Lab	1	3				
BS406	DSC-2D	Optional – II	4	4	20	80	25	125
		Optional – II Lab	1	3				
BS407	DSC-3D	Optional – III	4	4	20	80	25	125
		Optional– III Lab	1	3				
		TOTAL :	25	-	110	440	75	625

KAKATIYA UNIVERSITY, WARANGAL - 506 009
B.Sc. PROGRAMME
Under CBCS System
Scheme wef A.Y: 2021-2022

THIRD YEAR

SEMESTER - V

Code	Course Type	Title of the Paper	No. of Credits	Hrs PW	Max. Marks			Total Marks
					Internal Exam	End Exam	Lab	
BS 501	FL-5 A	English	3	3	15	60	-	75
BS 502	SL-5 B	Second Language	3	3	15	60	-	75
BS 503	G.E.	Water Resources Management (Taught by: Any Science Dept.)	4	4	20	80	-	100
BS 504	DSE-1E	Optional – I	4	4	20	80	25	125
		Optional – I Lab	1	3				
BS 505	DSE-2E	Optional – II	4	4	20	80	25	125
		Optional – II Lab	1	3				
BS506	DSE-3E	Optional – III	4	4	20	80	25	125
		Optional – III Lab	1	3				
		TOTAL:	25	-	110	440	75	625

SEMESTER - VI

Code	Course Type	Title of the Paper	No. of *Credits*	Hrs PW	Max. Marks			Total Marks
					Internal Exam	End Exam	Lab	
BS 601	FL-6A	English	3	3	15	60	-	75
BS 602	SL-6 B	Second Language	3	3	15	60	-	75
BS 603	P.W / Optional	Optional: Public Health & Hygiene (Taught by: Zoology / Botany / Biotechnology / Micro Biology)	4	4	20	80	-	100
BS 604	DSE-1F	Optional - I	4	4	20	80	25	125
		Optional – I Lab	1	3				
BS 605	DSE-2F	Optional – II	4	4	20	80	25	125
		Optional – II Lab	1	3				
BS 606	DSE-3F	Optional – III	4	4	20	80	25	125
		Optional – III Lab	1	3				
		TOTAL:	25	-	110	440	75	625

NSS/NCC/Sports/Extra Curricular	**Credits under Non – CGPA** **6**	**Up to 6 (2 in each Year)**	**Up to 6 (2 in each Year)**	**Up to 6 (2 in each Year)**
Summer internship	**4**	**Up to 4 (2 in each, after I & II years**	**Up to 4 (2 in each, after I & II years**	**Up to 4 (2 in each, after I & II years**

F.L : First Language;
S.L : Second Language;
A.E.C.C: Ability Enhancement Compulsory Course;
S.E.C : Skill Enhancement Course;
D.S.C : Discipline Specific Course;
D.S.E : Discipline Specific Effective;
G.E : Generic Elective;
P.W : Project Work;

KAKATIYA UNIVERSITY

M.Sc. Microbiology

Syllabus contents and Scheme of Examination

For the candidates admitted from the academic Year 2014-2015

Semester/ Paper Code	Title of Paper	Instru. Hours	Duration of Exam	Internal Marks	External Marks	Min Marks*	Total	Credits
Semester I								
MBT 101	Principles of Microbiology	4	3	20	80	32	100	4
MBT 102	Bacteriology & Virology	4	3	20	80	32	100	4
MBT 103	Biological Chemistry	4	3	20	80	32	100	4
MBT 104	Cell biology & Enzymology	4	3	20	80	32	100	4
MBP 101	Principles of Microbiology & Bacteriology & Virology	9	4	-	100	40	100	4
MBP 102	Biological Chemistry & Cell biology & zymology	9	4	-	100	40	100	4
	Seminar/Tutorials	1		25				1
Semester II								
MBT 201	Microbial Physiology	4	3	20	80	32	100	4
MBT 202	Molecular Biology	4	3	20	80	32	100	4
MBT 203	Advanced Immunology	4	3	20	80	32	100	4
MBT 204	Biophysical Techniques & Instrumentation	4	3	20	80	32	100	4
MBP 201	Microbial Physiology &Molecular Biology	9	4	-	100	40	100	4
MBP 202	Adv. Immunology &Biophy.Techn.& Instrument.	9	4	-	100	40	100	4
	Seminar/Tutorials	2	1	25	-	-	-	1
CBCS Paper		4	3	20	80	-	100	4

MBT = Microbiology Theory; MBP = Microbiology practical

* Minimum marks required for pass out of University theory examination (80 Marks)

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Vaagdevi Degree & P.G. College * Kishanpura, Hanumakonda. *

KAKATIYA UNIVERSITY
M.Sc. Microbiology
Syllabus contents and Scheme of Examination
For the candidates admitted from the academic Year 2014-2015

Semester/ Paper Code	Title of Paper	Instru. Hours	Duration of Exam	Internal Marks	External Marks	Min Marks*	Total	Credits
Semester III								
MBT 301	Microbial Genetics & Genetic Engineering	4	3	20	80	32	100	4
MBT 302	Bioinformatics & Computational Methods	4	3	20	80	32	100	4
MBT 303-	Bioprocess Technology	4	3	20	80	32	100	4
MBT 304	Agricultural Microbiology	4	3	20	80	32	100	4
MBP 301	Micro. Genetics & Genetic Engi. &Bioin. &Comp. Methods	9	4	--	100	40	100	4
MBP 302	Bioprocess Technology & Agri. Microbiology	9	4	--	100	40	100	4
	Seminar/Tutorials	1	1	25	-		-	1
Semester IV								
MBT 401	Environmental Microbiology	4	3	20	80	32	100	4
MBT 402	Medical Microbiology	4	3	20	80	32	100	4
MBT 403	Microbial Technology	4	3	20	80	32	100	4
MBT 404	Nanotechnology &Regulations of Microbial Products	4	3	20	80	32	100	4
MBP 401	Envi. & Medi. Microbiology Microbial Technology & Nanotech. & Reg. of Micro. Products	9	4	--	100	40	100	4
Internal Project	Internal Project				75+25		100	4
	Seminar/Tutorials	1	1	25	-		-	1
CBCS Paper		4	3	20	80	32	100	4
							2600	108

MBT = Microbiology Theory; MBP = Microbiology practical

* Minimum marks required for pass out of University theory examination (80 Marks)

CBCS Papers offered by the Department of Microbiology

1. Agricultural and Environmental Microbiology
2. Medical and Food & Nutritional Microbiology

Principal
Kishanpura, Hanamkonda

Vaagdevi Degree & P.G. College
Kishanpura, Hanamkonda.

M.Sc. Microbiology
Semester Pattern
Department Microbiology
Kakatiya University

With effective from 2014-2015

The syllabus is divided into four semesters. The first three semesters carry four theory papers and two practical papers and seminar. In the fourth semester four theory papers and one practical paper included. An Internal Project work is required to be completed in the fourth semester. Apart from the project, the student will also have to present a seminar in the fourth semester. Each theory paper is divided into four units and all the units carry equal weightage. All theory and practical papers are compulsory. Each theory and practical papers carries 100 marks. 100 marks allotted to the project work to be presented at the end of the fourth semester. Each seminar is allotted with 25 marks.

1. **Number of theory and practical periods:** The syllabus is based on 18 theory and 16 practical periods per week. Candidates are required to pass separately in theory and practical examinations.

2. **Seminar:** In all the semesters every student has to give at least one seminar and submit a written summary of the same.

3. **Project work:** The student will undergo training in the laboratory of faculty member allotted to him/her at the end of II semester. The reports of project work will be submitted at the end of the IV semester. The project work (Dissertation work) will be evaluated by the External and Internal (Chairperson, BOS, Microbiology) examiner at the end of fourth semester. 100 marks are allotted to the Project work. The Project work is compulsory.

4. **Distribution of Theory/Practical/Seminar/Project (Dissertation) marks:**

M.Sc. Microbiology
Semester – I

Paper Code	Paper Title	Internal Marks	Examination		CREDITS
			Maximum Marks	Pass Marks	
MBT 101	Principles of Microbiology	20	80	32	4
MBT 102	Bacteriology & Virology	20	80	32	4
MBT 103	Biological Chemistry	20	80	32	4
MBT 104	Cell biology & Enzymology	20	80	32	4
MBP 101	Principles of Microbiology & Bacteriology & Virology		100	40	4
MBP 102	Biological Chemistry & Cell biology & zymology		100	40	4
	Seminar/Tutorials		25	--	

Principal
VAAGDEVI DEGREE & P.G. COLLEGE
Kishanpura, Hanamkonda.

Vaagdevi Degree & P.G. College, Kishanpura, Hanumakonda.

M.Sc. Microbiology
Semester – II

Paper Code	Paper Title	Internal Marks	Examination		CREDITS
			Maximum Marks	Pass Marks	
MBT 201	Microbial Physiology	20	80	32	4
MBT 202	Molecular Biology	20	80	32	4
MBT 203	Advanced Immunology	20	80	32	4
MBT 204	Biophysical Techniques & Instrumentation	20	80	32	4
MBP 201	Microbial Physiology &Molecular Biology	--	100	40	4
MBP 202	Advanced Immunology &Biophysical Techniques & Instrumentation	--	100	40	4
	Seminar/Tutorials	--	25	--	1
CBCS Paper		20	80	32	4

M.Sc. Microbiology
Semester – III

Paper Code	Paper Title	Internal Marks	Examination		CREDITS
			Maximum Marks	Pass Marks	
MBT 301	Microbial Genetics & Genetic Engineering	20	80	32	4
MBT 302	Bioinformatics & Computational Methods	20	80	32	4
MBT 303	Bioprocess Technology	20	80	32	4
MBT 304	Agricultural Microbiology	20	80	32	4
MBP 301	Micro. Genetics & Genetic Engineering &Bioinformatics &Computational Methods	--	100	40	4
MBP 302	Bioprocess Technology & Agricultural Microbiology	--	100	40	4
	Seminar/Tutorials	--	25	--	1

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda

M.Sc. Microbiology
Semester – IV

Paper Code	Paper Title	Internal Marks	Examination		CREDITS
			Maximum Marks	Pass Marks	
MBT 401	Environmental Microbiology	20	80	32	4
MBT 402	Medical Microbiology	20	80	32	4
MBT 403	Microbial Technology	20	80	32	4
MBT 404	Nanotechnology &Regulations of Microbial Products	20	80	32	4
MBP 401	Environmental Microbiology & Medical Microbiology Microbial Technology & Nanotechnology & Regulation of Microbial Products	--	100	40	4
Internal Project	Internal Project	--	100	40	4
	Seminar/Tutorials	--	25	--	1
CBCS Paper		20	80	32	4

Theory Papers	-	16	(16x4)	64	Credits
Practical Papers	-	07	(07x4)	28	Credits
Seminars	-	04	(04x1)	04	Credits
Internal Project	-	01	(01x4)	04	Credits
CBCS Papers	-	02	(02x4)	08	Credits
Total Credits				108	Credits

Vaagdevi Degree & P.G. College * Kishanpura, Hanumakonda. *

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY
M.A/M.Sc (MATHEMATICS)
Semester I/II/III/IV
Scheme of Instruction and Examination
(With effect from 2016-2018 batch)

SEMESTER-I

Paper	Code of The paper	Title of The paper	No. of Periods (1 hr duration) per week	Internal Assess-ment Marks	Semester End Exam Marks		
					Theory	Practical	Total
I	M1CP1	Algebra-I	6	20	80	-	100
II	M1CP2	Real Analysis-I	6	20	80	-	100
III	M1CP3	Ordinary differential equations	6	20	80	-	100
IV	M1CP4	Discrete Mathematics	6	20	80	-	100
V	M1CP5	Fundamentals of Statistics	6	20	80	-	100

SEMESTER-II

Paper	Code of The paper	Title of The paper	No. of Periods (1 hr duration) per week	Internal Assess-ment Marks	Semester End Exam Marks		
					Theory	Practical	Total
I	M2CP1	Algebra-II	6	20	80	-	100
II	M2CP2	Real Analysis-II	6	20	80	-	100
III	M2CP3	Topology	6	20	80	-	100
IV	M2CP4	Complex Analysis	6	20	80	-	100
V	M2CP5	Special Functions	6	20	80	-	100

Vaagdevi Degree & P.G. College ★ Kishanpura

Principal
VAAGDEVI DEGREE & P.G. COLLEGE
Kishanpura, Hanamkonda.

Semester-III

Paper	Code of The paper	Title of The paper	No. of Periods (1 hr duration) per week	Internal Assess-ment Marks	Semester End Exam Marks		
					Theory	Practical	Total
I	M3CP1	Measure and Integration	6	20	80	-	100
II	M3CP2	Functional Analysis	6	20	80	-	100
III	M3CP3	Partial Differential Equations	6	20	80	-	100
IV	M3OP4(1)	Operations Research -I	6	20	80	-	100
	M3OP4(2)	Numerical Analysis - I	6	20	80	-	100
	M3OP4(3)	Automata and Languages	6	20	80	-	100
	M3OP4(4)	Advanced Complex Analysis	6	20	80	-	100
	M3OP4(5)	Commutative Rings and Modules	6	20	80	-	100
	M3OP4(6)	Mechanics of Solids	6	20	80	-	100
V	M3OP5(1)	Computer fundamentals and Programming in C	Th .4+Pr.3	20	60	20	100
	M3OP5(2)	Office automation and C-Language	Th .4+Pr.3	20	60	20	100
	M3OP5(3)	Numerical Analysis using C	Th .4+Pr.3	20	60	20	100

Vaagdevi Degree & P.G. College * Kishanpura, Hanumakonda. *

Principal
VAAGDEVI DEGREE & P.G. COLLEGE
Kishanpura, Hanamkonda.

Semester-IV

Paper	Code of The paper	Title of The paper	No. of Periods (1 hr duration) per week	Internal Assess-ment Marks	Semester End Exam Marks		
					Theory	Practical	Total
I	M4CP1	Advanced Linear Algebra	6	20	80	-	100
II	M4CP2	Graph Theory	6	20	80	-	100
III	M4CP3	Integral Equations and Transforms	6	20	80	-	100
IV	M4OP4(1)	Near Rings	6	20	80	-	100
	M4OP4(2)	Theory of ordinary differential equations	6	20	80	-	100
	M4OP4(3)	Operations Research-II	6	20	80	-	100
	M4OP4(4)	Numerical Analysis - II	6	20	80	-	100
	M4OP4(5)	Automata and Machines	6	20	80	-	100
	M4OP4(6)	Theory of Reliability	6	20	80	-	100
V	M4OP5(1)	Programming Methodology	Th .4+Pr.3	20	60	20	100
	M4OP5(2)	Programming in C++	Th .4+Pr.3	20	60	20	100
	M4OP5(3)	Applied Stocastic process with MATLAB	Th .4+Pr.3	20	60	20	100

Vaagdevi Degree & P.G. College Kishanpura, Hanamkonda

Principal
VAAGDEVI DEGREE & P.G. COLLEGE
Kishanpura, Hanamkonda

KAKATIYA UNIVERSITY WARANGAL
DEPARTMENT OF COMPUTER SCIENCE

COURSE STRUCTURE FOR M.SC. (CSC) WITH EFFECT FROM 2013-14

M.SC. I YEAR I SEMESTER:

Paper No	Paper Title/Subject	Workload Per Week (Theory : Lab)	Marks		
			Internal	External	Total
MSCCS111	DISCRETE MATHEMATICS	T(04)	20	80	100
MSCCS112	COMPUTER ORGANIZATION	T(04)	20	80	100
MSCCS113	OOPS WITH JAVA	T(04)	20	80	100
MSCCS114	OPERATING SYSTEMS	T(04)	20	80	100
MSCCS115	COMPUTER NETWORKS	T(04)	20	80	100
MSCCS116	OOPS LABORATORY	L(04)	--	50	50
MSCCS117	COMPUTER NETWORK S LABORATORY	L(04)	--	50	50
MSCCS118	OPERATING SYSTEM LABORATORY	L(04)	--	50	50
					650

Principal
Sagadevi Degree & P.G. College
Kishanpura, Hanumakonda

MSCCS111	DISCRETE MATHEMATICS	DM
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

U N I T - I

FUNDAMENTALS: Sets, Relations and functions, Fundamental of logic, Logical inferences, First order logic, Quantified propositions, Mathematical induction

ELEMENTARY COMBINATORICS: Combinations and Permutations, Enumeration- with Repetitions, with constrained repetitions, The Principle of Inclusion-Exclusion.(Chapters 1-2)

U N I T -II

RECURRENCE RELATIONS: Generating functions, Coefficients of Generating functions, Recurrence Relations, Inhomogeneous Recurrence Relations (Chapter-3)

U N I T - III

RELATIONS AND DIAGRAMS: Relations and diagrams, Binary relations, Equivalence relations, Ordering relations, Lattices, Paths and Closures, Directed graphs, Adjacency matrices-Applications, Sorting and Searching (Chapter - 4)

U N I T - IV

GRAPHS: Graphs, Isomorphism, Trees, Spanning trees, Binary trees, Planar graphs, Euler'sCircuits, Hamiltonian graphs, Chromatic numbers, Four-color problem, Network flows (Chapter 5)

TEXT-BOOK:

1. DISCRETE MATHEMATICS FOR COMPUTER SCIENTISTS, BY - J L MOTT, A KANDEL AND T PBAKER

REFERENCE BOOKS:

1. DISCRETE MATHEMATICAL STRUCTURE - (TMH) BY - TREMBLEY AND MANOHAR
2. DISCRETE MATHEMATICS WITH ALGORITHMS - (JOHN WILEY) BY - M.O. ALBERTSON AND J.P.HUTCHINSON
3. ELEMENTS OF DISCRETE MATHEMATICS-(TMH, SECOND EDITION) BY - C.L.LIU
4. DISCRETE MATHEMATICS - (PHI, THIRD EDITION) BY - BURNORD KOLMAN
5. DISCRETE MATHEMATICS BY KH ROSSEN (TMH)
6. DISCRETE MATHEMATICS BY S LIPSCHUTZ AND M. LIPSON SCHAUM'S SERIES (TMH)
7. DISCRETE MATHEMATICS FOR COMPUTER SCIENCE BY GARRRY HAGGARD, J.

Principal
Degree & P.G. College

SCHILPF AND S WHITE SIDES (THOMSON PRESS)
8. DISCRETE &COMBINATORIAL MATHEMATICS BY RALPH P GRIMALDI(PEARSON EDUCATION)
9. DISCRETE MATHEMATICAL STRUCTURES BY DS MALLIK & M K SEN (THOMSON PRESS)

MSCCS112	COMPUTER ORGANIZATION	CO
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

U N I T - I

BASIC STRUCTURE OF COMPUTER HARDWARE AND SOFTWARE: Functional units, Basic operational concepts, Bus structures, Software, Performance, Distributed Computing.
LOGIC CIRCUITS: Basic Logic Functions, Synthesis of Logic Functions Using ADN, OR, and NOT Gates, Minimization of Logic Expression, Synthesis with NAND and NOR Gates, Practical Implementation of Logic Gates, Flip-Flops, Registers and Shift Registers, Counters, Decoders, Multiplexers, Sequential Circuits. (Chapter 1, A.1 to A.13)

UN I T - II

ADDRESSING METHODS: Basic Concepts, Memory Locations, Main Memory Operations, Addressing Modes, Assembly Language, Basic I/O operations, Stacks and Queues, Subroutines. PROCESSING UNIT: Some Fundamental Concepts, Execution of a Complete Instruction, Hardwired Control, Performance Considerations, Micro Programmed Control, Signed Addition and Subtraction, Arithmetic and Branching Conditions, Multiplication of Positive Numbers, Signed-Operand, Integer Division, Floating-Point Numbers.(Chapter 2.1 to 2.83, 6.4 to 6.10)

U N I T - III

INPUT-OUTPUT ORGANIZATION: Accessing I/O Devices, Interrupts, Processor Examples, Direct Memory Access, I/O Hardware, Standard I/O Interfaces, The Motorola 680X0 Family, The Intel 80X86 Family, The Power PC Family, The Alpha AXP Family, Architectural and Performance Comparisons, A Stack Processor. (Chapter 4, 8.1 to 8.6)

U N I T - IV

MEMORY: Semiconductor RAM memories, Read-Only Memories, Cache Memories, Performance Considerations, Virtual Memories, Memory Management Requirements.
INTRODUCTION TO COMPUTER PERIPHERALS: I/O Devices, On-Line Storage. (Chapter 5, 9.1, 9.2)

Principal
Vaagdevi Degree & P.G. College

Exception Handling. Applets and Web Programming: Applets and HTML - Security Issues - Applets and Applications -Obtaining Resources Using an Applet - Combining Applications and Applets. (Chapters 7, 13, 18, 20, 21)

TEXT BOOK:

1. UNDERSTANDING OBJECT-ORIENTED PROGRAMMING WITH JAVA BY – TIMOTHY BUDD (PEARSON)

REFERENCE BOOKS:

1. THE COMPLETE REFERENCE JAVA 2 (Fourth Edition) BY - PATRICK NAUGHTON & HERBETSCHILDT (TMH)
2. PROGRAMMING JAVA - DECKER&HIRSH FIELD VIKAS PUBLISKING(2001) (THOMSON LEARNING) (SECOND EDITON)
3. INTRODUCTION TO JAVA PROGRAMMING - Y.DANIEL LIANG PHI (2002)
4. OBJECT ORIENTED PROGRAMMING THROUGH JAVA 2 BY - THAMUS WU (Mc.GrawHill)
5. JAVA 2 - DIETEL & DIETEL (PEARSON EDUCATION)
6. INTRODUCTION TO JAVA - BALA GURU SWAMY
7. INTRODUCTION TO PROGRAMMIND & OOD USING JAVA - JAINO NINE & FA HOSCH (JOHNWILEY)
8. STARTING OUT WITH JAVA - JONY GADDIS (DREAM TECH PRESS)
9. JAVA PROGRAMMING - SCHAUM'S SERIES
10. OBJECT ORIENTED APPLICATION DEVELOPMENT USING JAVA - ER DOXE ETC. (THOMSONPRESS)
11. THINKING IN JAVA -BY - BRUCE ECKEL (PEARSON)
12. PROGRAMMING & PROBLEM SOLVING WITH JAVA - JM SLACK (THOMSON)
13. COMPUTING CONCEPTS WITH JAVA2 ESSENTIALS - CAY HORSTMANN (JOHNWILEY)
14. JAVA PROGRAMMING ADVANCED TOPICS - J WIGGLESWORTH, P LUMBY MSCCS114

MSCCS114	OPERATING SYSTEMS	OS
WORK LOAD: 4 PPW	INTERNAL MARKS: 20	EXTERNAL MARKS: 80

UNIT - I

Computer System Overview - The Memory Hierarchy - I/O Communication Techniques. Operating System Overview - The Evolution of Operating Systems - Microsoft Windows Overview - Modern UNIX Systems - Linux. Process Description and Control - Process States - Process Description - Process Control - UNIX SVR 4 Process management. Threads, SMP, and Micro kernels – Processes and Threads - symmetric Multiprocessing - Micro Kernels. (Chapters1to 4)

UNIT - II

CONCURRENCY: Mutual Exclusion and Synchronization – Principles of Concurrency - Mutual Exclusion : Hardware Support - Semaphores - Monitors - Message Passing - Readers / Writers problem. Concurrency: Deadlock and Starvation - Principles of Deadlock - Deadlock Prevention - Deadlock Avoidance - Deadlock Detection - Dining Philosophers Problem - UNIX Concurrency Mechanisms. (Chapters 5, 6)

UNIT - III

Memory Management - memory management Requirements - Memory Partitioning- Paging - Segmentation. Virtual Memory - Hardware and Control Structures - Operating System Software. Uniprocessor Scheduling - Types of Processor Scheduling - Scheduling Algorithms -

Principal
Vaagdevi Degree & P.G. College
Hanumakonda.

SYLLABUS FOR
M.Sc. ZOOLOGY
(With effect from the academic year 2016-17 Under CBCS system)

Prof. T. RAVINDER REDDY
Chairman
Board of Studies

DEPARTMENT OF ZOOLOGY
KAKATIYA UNIVERSITY
WARANGAL 506 009
TELANGANA STATE

SYLLABUS FOR
M.Sc. ZOOLOGY

Paper	Title of the paper
	SEMESTER I
I	Biosystematics, Structure & Function of Invertebrates
II	Tools and Techniques in Biology
III	Animal Physiology and Ethology
IV	Genetics and Evolution
	SEMESTER II
I	Structure and Function of Vertebrates
II	Environmental Biology
III	Biochemistry
IV	Biostatistics and Computer Applications
	SEMESTER III
I	Molecular biology
II	Immunology
III	Elective: Parasitology OR Clinical Science
IV	Elective: Endocrinology& Reproductive Biology OR Bioinformatics
	SEMESTER IV
I	Cell Biology
II	Developmental Biology
III	Elective: Fisheries and Aquaculture OR Neurophysiology
IV	Elective: Animal Biotechnology OR Entomology

Prof. T. RAVINDER REDDY
Chairman
Board of Studies
Department of Zoology
KAKATIYA UNIVERSITY, WGL-506 009 (T.S)

Principal
Bhagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY, DEPARTMENT OF ZOOLOGY
(With effect from the academic year 2016-17 Under CBCS system)

S.No	Paper Code	Title of the Paper	Instruction Hrs/Week	No. of Credits	Marks		Total Marks
					External	Internal	
SEMESTER-I							
1	101	Biosystematics, Structure & Function Of Invertebrates	4	4	80	20	100
2	102	Tools and Techniques in Biology	4	4	80	20	100
3	103	Animal Physiology and Ethology	4	4	80	20	100
4	104	Genetics and Evolution	4	4	80	20	100
5	105	Practical-I	4	4	100	--	100
6	106	Practical-II	4	4	100	--	100
7	107	Seminar	--	1	--	25	25
		Total		25	520	105	625
SEMESTER-II							
1	201	Structure and Function of Vertebrates	4	4	80	20	100
2	202	Environmental Biology	4	4	80	20	100
3	203	Biochemistry	4	4	80	20	100
4	204	Biostatistics and Computer Applications	4	4	80	20	100
5	205	Practical-I	4	4	100	--	100
6	206	Practical-II	4	4	100	--	100
7	207	Seminar	--	1	--	25	25
		Total		25	520	105	625

Principal
Bhagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

S.No	Paper Code	Title of the Paper	Instruction Hrs/Week	No. of Credits	Marks		Total Marks
					External	Internal	
SEMESTER-III							
1	301	Molecular Biology	4	4	80	20	100
2	302	Immunology	4	4	80	20	100
3	303	Subject Elective – I Parasitology (OR) Subject Elective – II Clinical Science	4	4	80	20	100
4	304	Subject Elective – III Endocrinology & Reproductive Biology (OR) Subject Elective – IV Bioinformatics	4	4	80	20	100
5	305	Practical – I	4	4	100	--	100
6	306	Practical – II	4	4	100	--	100
7	307	Seminar	--	1	--	25	25
		Total		25	520	105	625
SEMESTER-IV							
1	401	Cell Biology	4	4	80	20	100
2	402	Developmental Biology	4	4	80	20	100
3	403	Subject Elective – I Fisheries And Aquaculture (OR) Subject Elective – II Neurophysiology	4	4	80	20	100
4	404	Subject Elective – III Animal Biotechnology (OR) Subject Elective – IV Entomology	4	4	80	20	100
5	305	Practical – I	4	4	100	--	100
6	406	Practical – II	4	4	100	--	100
7	407	Seminar	--	1	--	25	25
		Total		25	520	105	625
GRAND TOTAL (Sem I+II+III+IV)				**100**	**2080**	**420**	**2500**

SYLLABUS FOR
M.Sc. COURSE IN ZOOLOGY
(With effect from the academic year 2021-22 Under CBCS system)

DEPARTMENT OF ZOOLOGY
KAKATIYA UNIVERSITY
HANMAKONDA 506 009
TELANGANA STATE

KAKATIYA UNIVERSITY, DEPARTMENT OF ZOOLOGY
(With effect from the academic year 2021-22 Under CBCS system)

S.No	Paper Code	Title of the Paper	Instruction Hrs/Week	No. of Credits	Marks		Total Marks
					External	Internal	
SEMESTER-I							
1	101	Biosystematics, Structure & Function Of Invertebrates	4	4	80	20	100
2	102	Tools and Techniques in Biology	4	4	80	20	100
3	103	Animal Physiology and Ethology	4	4	80	20	100
4	104	Genetics and Evolution	4	4	80	20	100
5	105	Practical-I	4	4	100	--	100
6	106	Practical-II	4	4	100	--	100
7	107	Seminar	--	1	--	25	25
		Total		25	520	105	625
SEMESTER-II							
1	201	Structure and Function of Vertebrates	4	4	80	20	100
2	202	Environmental Biology	4	4	80	20	100
3	203	Biochemistry	4	4	80	20	100
4	204	Biostatistics and Computer Applications	4	4	80	20	100
5	205	Practical-I	4	4	100	--	100
6	206	Practical-II	4	4	100	--	100
7	207	Seminar	--	1	--	25	25
		Total		25	520	105	625

Principal
Bhagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

S.No	Paper Code	Title of the Paper	Instruction Hrs/Week	No. of Credits	Marks		Total Marks
					External	Internal	
SEMESTER-III							
1	301	Molecular Biology	4	4	80	20	100
2	302	Immunology	4	4	80	20	100
3	303	Subject Elective – I Parasitology (OR) Subject Elective – II Clinical Science	4	4	80	20	100
4	304	Subject Elective – III Endocrinology & Reproductive Physiolgy (OR) Subject Elective – IV Bioinformatics	4	4	80	20	100
5	305	Practical – I	4	4	100	--	100
6	306	Practical – II	4	4	100	--	100
7	307	Seminar	--	1	--	25	25
		Total		25	520	105	625
SEMESTER-IV							
1	401	Cell Biology	4	4	80	20	100
2	402	Developmental Biology	4	4	80	20	100
3	403	Subject Elective – I Fisheries And Aquaculture (OR) Subject Elective – II Neurophysiology	4	4	80	20	100
4	404	Subject Elective – III Animal Biotechnology (OR) Subject Elective – IV Entomology	4	4	80	20	100
5	305	Practical – I	4	4	100	--	100
6	406	Practical – II	4	4	100	--	100
7	407	Seminar	--	1	--	25	25
		Total		25	520	105	625
GRAND TOTAL (Sem I+II+III+IV)				**100**	**2080**	**420**	**2500**

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda

MBA

KAKATIYA UNIVERSITY
WARANGAL

RULES AND REGULATIONS GOVERNING
MBA Course under CBCS with effect from the Academic Year 2016-2017

1. The Course

The duration of MBA programme is two academic years consisting of Four Semesters - two semesters in each year - each semester of 14-16 weeks duration.

Students who join MBA programme shall not take -up any employment either part-time or full-time during the University academic working hours. Students who are admitted to MBA course and who are subsequently found to be in employment during the University academic working hours anywhere in India will cease to be students of the course.

2. Admission

Candidates possessing a Bachelor Degree in any discipline (Excluding B.O.I, and B.F.A) with 50% aggregate marks (45% in case of reserved categories) and qualified in ICET exam are eligible for admission to MBA programme subject to the rules and regulations of the University from time to time.

3. Course Structure, Hours of instruction per week and Aggregate marks

The MBA programme offers in all 28 papers consisting of 22 core papers and 6 elective papers apart from Viva-voce and project report. In addition to one foundation course and two open electives. The details of semester-wise subjects, hours of instruction per week, credits per paper are given in Appendix – I.

MBA COURSE STRUCTURE

No	Code	Nature	No. of Papers	Semester	Credits
1	CORE	Core	16 @ 4 ppw	I(5)II(5)III(3) IV(3)	64
2	GE	Generic Electives	4@4ppw	III(2)IV(2)	16
3	OE	Inter Disciplinary (1+1 = 2)	2@ 4 ppw	III (1) and IV (1)	8
4	ELE	Electives (Discipline Centric)	6 @ 4ppw	III(3) IV(3)	24
5	VIVA	First Year End Viva			2
6		Project Report &Viva Voce	1	IV	4
Total			**29**		**118**

MBA CBCS Course Structure w.e.f From 2016-17 as per the Modifications Suggested by the PG BOS on 19-06-2017

CBCS KU MBA– I Semester

Sl.No	Course No	Title	Nature	Contact Hours	Credits	Internal		External	Total
						Test	Seminar		
1	MB101	Management and Organization Theory	Core	4	4	20	10	70	100
2	MB102	Accounting for Managers	Core	4	4	20	10	70	100
3	MB103	Statistics for Managers	Core	4	4	20	10	70	100
4	MB104	Information Technology for Managers	Core	4	4	20	10	70	100
5	MB105	Marketing Management	Core	4	4	20	10	70	100
6	MB106	Generic Elective – I 1. Business Environment – I(a) (Or) 2. Entrepreneurship Development – I (b)	Generic	4	4	20	10	70	100

7	MB107	Generic Elective – II 1. Managerial Economics – II(a) (Or) 2. Communication Skills – II(b)	Generic	4	4	20	10	70	100
		Total		28	28	140	70	490	700

MBA– II Semester

Sl.No	Course No	Title	Nature	Contact Hours	Credits	Internal		External	
						Test	Seminar		
1	MB201	Human Resource Management	Core	4	4	20	10	70	
2	MB202	Financial Management	Core	4	4	20	10	70	
3	MB203	Management Accounting	Core	4	4	20	10	70	
4	MB204	Operations Research	Core	4	4	20	10	70	
5	MB205	Business Research Methodology	Core	4	4	20	10	70	

6	MB206	Generic Elective – III 1. Business Ethics –III(a)(Or) 2. Retail Management – III(b)	Generic	4	4	20	10	70	
7	MB207	Generic Elective – IV 1. Business Analytics using Excel – IV(a) (Or) 2. Customer Relationship Management – IV(b)	Generic	4	4	20	10	70	
8	MB208	First Year End Viva	Grading		2			50	
		Total		28	30	140	70	540	

MBA– III Semester

Sl.No	Course No	Title	Nature	Contact Hours	Credits	Internal		External	
						Test	Seminar		
1	MB301	Organization Behavior	Core	4	4	20	10	70	
2	MB302	Strategic Management	Core	4	4	20	10	70	
3	MB 303	Managerial Communication	Core	4	4	20	10	70	

4	MB304	Interdisciplinary Courses a) e-Business Or b) Business Law	Open	4	4	20	10	70	
5	MB305 MB306 MB307	Discipline Specific Elective I One elective group from A/B/C/D groups consisting of 3 papers with 4 credits each (4 hours per week)	DSC	12	12	60	30	210	
				28	28	140	70	490	

MBA IV Semester

Sl.No	Course No	Title	Nature	Contact Hours	Credits	Internal		External	
						Test	Seminar		
1	MB401	Operations Management	Core	4	4	20	10	70	
2	MB402	International Business	Core	4	4	20	10	70	

3	MB403	Creativity and Innovations	Core	4	4	20	10	70	
4	MB404A	Project Report	Field Work	0	2			100	
4	MB404B	Project Viva-voce	Grading	0	2			50	
5	MB405	Inter Disciplinary Elective II a) Personal Finance (or) b) MIS	Open	4	4	20	10	70	
6	MB406 MB407 MB408	Discipline Specific Electives (3) One elective group from A/B/C/D groups consisting of 3 papers with 4 credits each (4 hours per week)	DSC	12	12	60	30	210	
		Total		28	32	140	70	640	

III Semester Elective Course Structure

Group-A: HUMAN RESOURCE MANAGEMENT

6	MB305A	Human Resource Development	4	4	20	10	70	100
7	MB306A	Labour Laws	4	4	20	10	70	100

8	MB307A	Organisation Development	4	4	20	10	70	100
Group-B: MARKETING MANAGEMENT									
6	MB305B	Consumer Behaviour	4	4	20	10	70	100
7	MB306B	Advertising & Sales Management	4	4	20	10	70	100
8	MB307B	Product & Brand Management	4	4	20	10	70	100
Group-C: FINANCIAL MANAGEMENT									
6	MB305C	Security Analysis &Port folio Management	4	4	20	10	70	100
7	MB306C	Indian Financial System	4	4	20	10	70	100
8	MB307C	Corporate Taxation & Planning	4	4	20	10	70	100
Group-D: SYSTEMS MANAGEMENT									
6	MB305D	Relationai Data Base Management System	4	4	20	10	70	100
7	MB306D	Management of Software Projects Enterprise Resource Planning (ERP) System Analysis and Design	4	4	20	10	70	100

8	MB307D	Enterprise Resource Planning (ERP)	4	4	20	10	70	100
IV Semester Elective Course Structure								
Group-A: HUMAN RESOURCE MANAGEMENT								
6	MB406A	Management of Industrial Relations	4	4	20	10	70	100
7	MB407A	Compensation Management	4	4	20	10	70	100
8	MB408A	Strategic Human Resource Management	4	4	20	10	70	100
Group-B: MARKETING MANAGEMENT								
6	MB406B	Services Marketing	4	4	20	10	70	100
7	MB407B	Rural Marketing	4	4	20	10	70	100
8	MB408B	Supply Chain Management	4	4	20	10	70	100
Group-C: FINANCIAL MANAGEMENT								
6	MB406C	International financial Management	4	4	20	10	70	100
7	MB407C	Strategic Financial Management	4	4	20	10	70	100
8	MB408C	Financial Derivatives	4	4	20	10	70	100
Group-D: SYSTEMS MANAGEMENT								

6	MB406D	Artificial Intelligence	4	4	20	10	70	100
7	MB407D	Data Communications and Networking	4	4	20	10	70	100
8	MB408D	Data Mining and Data Warehousing	4	4	20	10	70	100

KAKATIYA UNIVERSITY, WARANGAL

DEPARTMENT OF COMPUTER SCIENCE
MCA COURSE STRUCTURE UNDER CBCS
WITH EFFECT FROM 2017-18

MCA I YEAR I SEMESTER:

Paper No	Paper Title / Subject	Workload Per week (Theory : Lab)	MARKS			Credits
			Internal	External	Total	
MCA111	Problem Solving and Computer Programming	T (4)	20	80	100	4
MCA112	Computer Organization	T (4)	20	80	100	4
MCA113	Discrete Mathematical Structures	T (4)	20	80	100	4
MCA114	Internet Technologies	T (4)	20	80	100	4
MCA115	Managerial Economics	T (4)	20	80	100	4
MCA116	Problem Solving and Computer Programming Laboratory	L (4)	--	50	50	2
MCA117	Internet Technologies Laboratory	L (4)	--	50	50	2
MCA118	Open Source Laboratory	L (4)	--	50	50	2
Grand total (marks and credits)					**650**	**26**

A. [illegible]
Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY, WARANGAL

DEPARTMENT OF COMPUTER SCIENCE
MCA COURSE STRUCTURE UNDER CBCS
WITH EFFECT FROM 2016-17

MCA I YEAR II SEMESTER:

Paper No	Paper Title / Subject	Workload Per week (Theory : Lab)	MARKS			Credits
			Internal	External	Total	
MCA121	Data Structures	T (4)	20	80	100	4
MCA122	Object Oriented Programming	T (4)	20	80	100	4
MCA123	System Software	T (4)	20	80	100	4
MCA124	Operating System	T (4)	20	80	100	4
MCA125	Probability and Statistical Methods	T (4)	20	80	100	4
MCA126	Data Structures Laboratory	L (4)	--	50	50	2
MCA127	Object Oriented Programming Laboratory	L (4)	--	50	50	2
MCA128	Operating System & System Software Laboratory	L (4)	--	50	50	2
Grand total (marks and credits)					**650**	**26**

Vaagdevi Degree & P.G. College Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY, WARANGAL

DEPARTMENT OF COMPUTER SCIENCE
MCA COURSE STRUCTURE UNDER CBCS
WITH EFFECT FROM 2016-17

MCA II YEAR I SEMESTER:

Paper No	Paper Title / Subject	Workload Per week (Theory : Lab)	MARKS			Credits
			Internal	External	Total	
MCA211	Database Management Systems	T (4)	20	80	100	4
MCA212	Data Communication and Networks	T (4)	20	80	100	4
MCA213	Software Engineering	T (4)	20	80	100	4
MCA214	Principles and Practices of Management	T (4)	20	80	100	4
MCA215	.NET Programming	T (4)	20	80	100	4
MCA216	Database Management Systems Laboratory	L (4)	--	50	50	2
MCA217	Software Engineering Laboratory	L (4)	--	50	50	2
MCA218	.NET Programming Laboratory	L (4)	--	50	50	2
Grand total (marks and credits)					**650**	**26**

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY, WARANGAL

DEPARTMENT OF COMPUTER SCIENCE
MCA COURSE STRUCTURE UNDER CBCS
WITH EFFECT FROM 2016-17

MCA II YEAR II SEMESTER:

Paper No	Paper Title / Subject	Workload Per week (Theory : Lab)	MARKS			Credits
			Internal	External	Total	
MCA221	Data Mining	T (4)	20	80	100	4
MCA222	Unix Network Programming	T (4)	20	80	100	4
MCA223	Web Technologies	T (4)	20	80	100	4
MCA224	Mobile Communications	T (4)	20	80	100	4
MCA225	Accountancy and Financial Management	T (4)	20	80	100	4
MCA226	Unix Network Programming Laboratory	L (4)	--	50	50	2
MCA227	Web Technologies Laboratory	L (4)	--	50	50	2
MCA228	Data Mining Laboratory	L (4)	--	50	50	2
Grand total (marks and credits)					**650**	**26**

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanamkonda.

KAKATIYA UNIVERSITY, WARANGAL

DEPARTMENT OF COMPUTER SCIENCE
MCA COURSE STRUCTURE UNDER CBCS
WITH EFFECT FROM 2016-17

MCA III YEAR I SEMESTER:

Paper No	Paper Title / Subject	Workload Per week (Theory : Lab)	MARKS			Credits
			Internal	External	Total	
MCA311	Artificial Intelligence	T (4)	20	80	100	4
MCA312	Cryptography and Network Security	T (4)	20	80	100	4
MCA313	Mobile Application Development	T (4)	20	80	100	4
MCA314	Elective - I	T (4)	20	80	100	4
MCA315	Elective – II	T (4)	20	80	100	4
MCA316	Mobile Application Development Laboratory	L (4)	--	50	50	2
MCA317	Cryptography and Network Security Laboratory	L (4)	--	50	50	2
MCA318	Mini Project Laboratory	L (4)	--	50	50	2
Grand total (marks and credits)					**650**	**26**

No.	Elective - I	No.	Elective – II
A	Cloud Computing	A	Soft Computing
B	Human Computer Interaction	B	E-Commerce
C	Software Project Management	C	Information Retrieval System

Vaagdevi Degree & P.G. College, Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY, WARANGAL
DEPARTMENT OF COMPUTER SCIENCE
MCA COURSE STRUCTURE UNDER CBCS
WITH EFFECT FROM 2016-17

MCA III YEAR II SEMESTER:

Paper No	Paper Title / Subject	Workload Per week (Theory : Lab)	MARKS			Credits
			Internal	External	Total	
MCA321	MAJOR PROJECT WORK	-	-	150	150	6

MCA321	MAJOR PROJECT WORK	MPW
WORK LOAD: 0 PPW	REVIEW ASSESSMENT	EXTERNAL MARKS: 150

The Project work constitutes a major component in most professional programmes. It needs to be carried out with due care, and should be executed with seriousness by the students. The project work is not only a partial fulfillment of the MCA requirements, but also provide a mechanism to demonstrate ASK (Attitude, Skills, and Knowledge) with specialization. The project work should compulsorily include the software development.

The majority of the students are expected to work on a real-life project preferably in some industry/ R&D Laboratories / Educational Institution / Software Company. Students are encouraged to work in their interested area. However, it is NOT MANDATORY for a student to work on a real-life project. The student can formulate a project problem with the help of his / her Guide and submit the project proposal of the same. APPROVAL OF THE PROJECT PROPOSAL IS MANDATORY. If approved, the student can commence working on it, and complete it. Use the latest versions of the software packages for the development of the project. Project problem domain selected and the specifications should be very much genuine.

Every student is mandatory to present two seminars in the sixth semester on the progress of the project.

KAKATIYA UNIVERSITY, WARANGAL

DEPARTMENT OF COMPUTER SCIENCE
MCA COURSE STRUCTURE UNDER CBCS
WITH EFFECT FROM 2020-22

MCA I YEAR I SEMESTER:

Paper No	Paper Title / Subject	Workload Per week (Theory : Lab)	MARKS			Credits
			Internal	External	Total	
MCA111	C and Data Structures	T (4)	20	80	100	4
MCA112	Operating System	T (4)	20	80	100	4
MCA113	Java Programming	T (4)	20	80	100	4
MCA114	Computer Networks	T (4)	20	80	100	4
MCA115	Probability and Statistical Methods	T (4)	20	80	100	4
MCA116	C and DS Lab	L (4)	--	50	50	2
MCA117	OS Lab	L (4)	--	50	50	2
MCA118	Java Programming Lab	L (4)	--	50	50	2
Grand total (Marks and Credits)					**650**	**26**

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Vaagdevi Degree & P.G. College * Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY, WARANGAL

DEPARTMENT OF COMPUTER SCIENCE
MCA COURSE STRUCTURE UNDER CBCS
WITH EFFECT FROM 2020-22

MCA IYEAR IISEMESTER

Paper No	Paper Title / Subject	Workload Per week (Theory : Lab)	MARKS			Credits
			Internal	External	Total	
MCA121	Python Programming	T (4)	20	80	100	4
MCA122	Database Management Systems	T (4)	20	80	100	4
MCA123	Software Engineering	T (4)	20	80	100	4
MCA124	Cryptography and Network Security	T (4)	20	80	100	4
MCA125	Principles and Practice of Management	T (4)	20	80	100	4
MCA126	Python Programming lab	L (4)	--	50	50	2
MCA127	DBMS Lab	L (4)	--	50	50	2
MCA128	Software Engineering Lab	L (4)	--	50	50	2
Grand total (marks and credits)					**650**	**26**

KAKATIYA UNIVERSITY, WARANGAL

DEPARTMENT OF COMPUTER SCIENCE
MCA COURSE STRUCTURE UNDER CBCS
WITH EFFECT FROM 2020-21

MCA II YEAR I SEMESTER:

Paper No	Paper Title / Subject	Workload Per week (Theory : Lab)	MARKS			Credits
			Internal	External	Total	
MCA211	Data Mining	T (4)	20	80	100	4
MCA212	Web Technologies	T (4)	20	80	100	4
MCA213	Theory of Computation	T (4)	20	80	100	4
MCA214	Elective – I	T (4)	20	80	100	4
MCA215	Elective – II	T (4)	20	80	100	4
MCA216	Data Mining Lab	L (4)	--	50	50	2
MCA217	Web Technologies Lab	L (4)	--	50	50	2
MCA218	Advanced Programming Lab (with respect to Elective – I)	L (4)	--	50	50	2
Grand total (marks and credits)					**650**	**26**

Elective –I

a. Mobile Application Development
b. Cloud Computing
c. R-Programming

Elective – II

a. Internet of Things
b. Big Data Analytics
c. Mobile Computing

A. Subhadra Devi
Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY, WARANGAL

DEPARTMENT OF COMPUTER SCIENCE
MCA COURSE STRUCTURE UNDER CBCS
WITH EFFECT FROM 2020-21

MCA II YEAR II SEMESTER:

Paper No	Paper Title / Subject	Workload Per week (Theory : Lab)	MARKS			Credits
			Internal	External	Total	
MCA221	Artificial Intelligence	T (4)	20	80	100	4
MCA222	Elective-III	T (4)	20	80	100	4
MCA223	Elective-IV	T (4)	20	80	100	4
MCA224	Project	T (8)	50	200	250	10
Grand total (marks and credits)					**550**	**22**

Elective – III

a. Foundations of Block Chain Technologies
b. Cyber Security
c. E-Commerce

Elective – IV

a. Digital Image Processing
b. Machine Learning
c. Language Processors

KAKATIYA UNIVERSITY, WARANGAL

DEPARTMENT OF COMPUTER SCIENCE
MCA COURSE STRUCTURE UNDER CBCS
WITH EFFECT FROM 2020-22

MCA I YEAR I SEMESTER:

Paper No	Paper Title / Subject	Workload Per week (Theory : Lab)	MARKS			Credits
			Internal	External	Total	
MCA111	C and Data Structures	T(4)	20	80	100	4
MCA112	Operating System	T(4)	20	80	100	4
MCA113	Java Programming	T(4)	20	80	100	4
MCA114	Computer Networks	T(4)	20	80	100	4
MCA115	Probability and Statistical Methods	T(4)	20	80	100	4
MCA116	C and DS Lab	L(4)	--	50	50	2
MCA117	OS Lab	L(4)	--	50	50	2
MCA118	Java Programming Lab	L(4)	--	50	50	2
Grand total (Marks and Credits)					**650**	**26**

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda. ★

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

2016 - 2019

Course code:

BC - 102

DEPARTMENT OF ENGLSIH
KAKATIYA UNIVERSITY

UG I Semester

LESSON ONE (SHORT FICTION)	**TEXT**	**OLD MAN AT THE BRIDGE by Ernest Hemmingway**
	PRONUNICIATION	CONSONANTAL SOUNDS
	GRAMMAR	ARTICLES
	VOCABULARY	SYNONYMS
	SPELLING	PICK OUT THE WRONGLY-SPELT WORDS
	CONVERSATIONS	ICE-BREAKING
	READING PASSAGE	RUDRAMA DEVI
	LIFE SKILLS	SELF-AWARENESS
LESSON TWO (PROSE)	**TEXT**	**INDIA AND DEMOCRACY by Dr.B.R.AMBEDKAR**
	PRONUNICIATION	VOWEL SOUNDS: MONOPHTHONGS
	GRAMMAR	PREPOSITIONS
	VOCABULARY	ANTONYMS
	SPELLING	USE OF 'UN' OR 'DIS'
	CONVERSATIONS	INTRODUCING
	READING PASSAGE	MEDARAM JATARA
	LIFE SKILLS	EMPATHY
LESSON THREE (POETRY)	**TEXT**	**THE SCRIBE by WALTER DE LA MARE**
	PRONUNICIATION	VOWEL SOUNDS: DIPHTHONGS
	GRAMMAR	TENSES
	VOCABULARY	HOMOPHONES & HOMONYMS
	SPELLING	USE OF 'TION' OR 'SION'
	CONVERSATIONS	DESCRIBING A PERSON/PLACE/EVENT
	READING PASSAGE	KALOJI
	LIFE SKILLS	CRITICAL THINKING & CREATIVE THINKING SKILLS
LESSON FOUR (DRAMA)	**TEXT**	**THE NEVER-NEVER NEST by CEDRIC MOUNT**
	PRONUNICIATION	PLOSIVES
	GRAMMAR	FRAMING QUESTIONS
	VOCABULARY	ONE-WORD SUBSTITUTES
	SPELLING	USE OF 'MENT'
	CONVERSATIONS	GIVING DIRECTIONS
	READING PASSAGE	KUNTALA WATERFALL
	LIFE SKILLS	DECISION-MAKING SKILL

1. 2. 3.

4. 5. 6.

Vaagdevi Degree & P.G. College * Kishanpura, Hanumakonda. * 2016

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Course Code:
BC-202

Department of English
Kakatiya University
UG II Semester

LESSON FIVE (SHORT FICTION)	TEXT	THE RELUCTANT PHILANTHROPIST by GOLLAPUDI SRINIVASA RAO
	PRONUNICIATION	FRICATIVES
	GRAMMAR	DISCOURSE MARKERS
	VOCABULARY	IDIOMS & PHRASES
	SPELLING	USE OF 'IE' AND 'EI'
	CONVERSATIONS	SEEKING INFORMATION
	READING PASSAGE	BATHUKAMMA
	LIFE SKILLS	PROBLEM-SOLVING SKILL
LESSON SIX (PROSE)	TEXT	HOW SHOULD ONE READ A BOOK by VIRGINIA WOOLF
	PRONUNICIATION	AFFRICATES & NASALS
	GRAMMAR	VOICE & DEGREES OF COMPARISON
	VOCABULARY	PHRASAL VERBS
	SPELLING	USE OF 'ABLE' & 'IBLE'
	CONVERSATIONS	ORGANIZING A MEETING/INVITING GUESTS
	READING PASSAGE	RAMAPPA
	LIFE SKILLS	EFFECTIVE COMMUNICATION SKILL
LESSON SEVEN (POETRY)	TEXT	AFTER BLENHEIM by ROBERT SOUTHEY
	PRONUNICIATION	LATERALS, SEMI-VOWELS
	GRAMMAR	REPORTING SPEECH & QUESTION TAGS
	VOCABULARY	LEXIS/WORD-BUILDING
	SPELLING	USE OF PREFIXES & SUFFIXES
	CONVERSATIONS	ORGANIZING A MEETING/PROPOSING A VOTE OF THANKS
	READING PASSAGE	BONALU
	LIFE SKILLS	INTER-PERSONAL RELATIONSHIPS
LESSON EIGHT (DRAMA)	TEXT	THE INFORMER by BERTOLT BRECHT
	PRONUNICIATION	SYLLABIC STRUCTURE
	GRAMMAR	COMMON ERRORS
	VOCABULARY	COLLOCATIONS
	SPELLING	
	CONVERSATIONS	
	READING PASSAGE	KINNERASANI
	LIFE SKILLS	COPING WITH STRESS AND EMOTIONS

1. 2. 3.

4. 5. 12/4/16 6.

Vaagdevi Degree & P.G. College * Kishanpura, Hanumakonda * 175

A.
Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

course code:
BC - 302

DEPARTMENT OF ENGLISH
KAKATIYA UNIVERSITY
ENGLISH TEXT BOOK (*ENGLISH FOR ACCOMPLISHMENT*) FOR
B.A., B.Com., B.Sc., B.B.M. & B.C.A. III SEMESTER

UNIT ONE (SHORT FICTION)	**TEXT**	**The Touch By Abburi Chayadevi**
	Grammar	Concord
	Etymology	Word Origin
	Reading Comprehension	P.V.Narasimha Rao
	Writing	Letter Writing
	Language Skills	Listening Skills: Types of Listening, Barriers to Effective Listening
	Communication & Soft Skills	Brain Storming
UNIT TWO (PROSE)	**Text**	**To Students by M K Gandhi**
	Grammar	Words and Their Forms
	Etymology	Fun with Words
	Reading Comprehension	Basara, Badradri
	Writing	Note-making / Note-taking
	Language Skills	Speaking Skills: Conversation Skills
	Communication & Soft Skills	JAM
UNIT THREE (POETRY)	**Text**	**The Bat Messanger by Jashuva**
	Grammar	Finding out correct option/ error
	Etymology	Loan Words
	Reading Comprehension	Perini
	Writing	Essay Writing
	Language Skills	Reading Skills: Skimming and Scanning
	Communication & Soft Skills	Oral Presentation
UNIT FOUR (DRAMA)	**Text**	**Ramanujan by Partap Sehgal**
	Grammar	Finding out correct order/ jumbled words
	Etymology	Derivations
	Reading Comprehension	Mimicry
	Writing	Expansion of Idea/ Proverb
	Language Skills	Writing Skills: Paragraph Writing
	Communication & Soft Skills	Dialogue Writing

DEAN
Faculty of Arts
Kakatiya University
WARANGAL-506009

Chairman
Board of Studies in English
Kakatiya University
WARANGAL-506009 (TS)

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

course code:
BC-402

DEPARTMENT OF ENGLISH
KAKATIYA UNIVERSITY
ENGLISH TEXT BOOK (*ENGLISH FOR ACCOMPLISHMENT*) FOR
B.A., B.Com., B.Sc., B.B.M. & B.C.A. IV SEMESTER

UNIT FIVE (SHORT FICTION)	**Text**	**Arjun by Mahaswetha Devi**
	Grammar	Sentence Completion
	Etymology	Compounding
	Reading Comprehension	Dr Samala Sadashiva
	Writing	E-correspondence
	Language Skills	Listening Skills: Strategies for Effective Listening
	Communication & Soft Skills	Role Play
UNIT SIX (PROSE)	**Text**	**Women by Ismat**
	Grammar	Cloze Test
	Etymology	Onomatopoeia
	Reading Comprehension	Elgandal Fort, Vemulawada
	Writing	Report Writing
	Language Skills	Speaking Skills: Public Speaking
	Communication & Soft Skills	Debates
UNIT SEVEN (POETRY)	**Text**	**Father Returning Home by Dilip Chitre**
	Grammar	Synthesis of Sentences: Simple to Compound, Compound to Simple
	Etymology	Sound Symbolism
	Reading Comprehension	Art Forms: Pembarthy, Nirmal
	Writing	Creative Writing

DEAN
Faculty of Arts
Kakatiya University
WARANGAL-506 009

Chairman
Board of Studies in English
Kakatiya University
WARANGAL-506009 (TS)

Principal
Yaagdevi Degree & P.G. College
Kishanpura, Hanamkonda.

S.L

2016-'17

Second Language – Telugu

Kakatiya University, Warangal

CBCS Pattern of BA., B.Sc., & B.Com 2016-17

Syllabus

తెలుగు - ద్వితీయ భాష

I Semester

Unit - I (ప్రాచీన కవిత్వం)

1.	శకుంతలోపాఖ్యానం	-	నన్నయ
2	గొడగూచి	-	పిల్లలమర్రి పినవీరభద్రుడు
3	త్యాగ నిరతి	-	కొరవి గోపరాజు
4	గజేంద్ర మోక్షము	-	బమ్మెర పోతన

Unit -II (ఆధునిక కవిత్వం)

1.	కాసులు	-	గురజాడ అప్పారావు
2	రాజు-కవి	-	డా॥ గుళ్ళం రామయ్య
3	గంగిరెద్దు	-	డా॥ పల్లా దుర్గయ్య
4	జయభేరి	-	శ్రీశ్రీ

Unit -III (వచన విభాగం)

1.	యుగాంతం (కథానిక)	-	నెల్లూరి కేశవస్వామి
2	ఎంకన్న (కథానిక)	-	ఆచార్య పీఱాల యశోదారెడ్డి

Unit -IV (భాషా విభాగం)

1 సంధులు

2 సమాసాలు

19/5/16 19/5/16 19/5/16 19/5/16

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda

2016 - 2017

Telugu

Kakatiya University, Warangal

CBCS Pattern of BA., B.Sc., & B.Com

Syllabus

తెలుగు ద్వితీయ భాష

II Semester

Unit - I (ప్రాచీన కవిత్వం)

1.	సంవరణుడి తపస్సు	-	అద్దంకి గంగాధరుడు
2.	శ్రీ రంగక్షేత్ర మహిమ	-	సారంగు తమ్మయ
3	హనుమత్ సందేశము	-	మొల్ల
4	సుభాషితములు	-	ఏమగు లక్ష్మణ కవి

Unit II (ఆధునిక కవిత్వం)

1	అంతర్వాదము	-	దాశరథి కృష్ణమాచార్యులు
2	'ప్ర' పంచపదులు	-	డా॥ సి నారాయణరెడ్డి
3	రోడ్డు రోలర్	-	ఆచార్య పేర్వారం జగన్నాథం
4	అల్విదా	-	కాముని

Unit III (వచన విభాగం)

1	మూడి పండు	-	(వ్యాసం) సురవరం ప్రతాపరెడ్డి
2	నా ఊరు పోయింది-		(జ్ఞాపకాలు) దేవులపల్లి వేంకట కృష్ణశాస్త్రి
3	ఐదీ ఒక కథే, పేరులు దారులు గుర్తుంచుకోవడం (వ్యాసం)		
			- శ్రీమతి నందగిరి ఇందిరాదేవి

Unit IV (ఉపవాదకం)

1	రుద్రమదేవి	-	ఒద్దిరాజు సీతారామచంద్ర రాయప్ప

19.5.2016 19/5/16

Vaagdevi Degree & P.G. College Kishanpura, Hanumakonda

A. Sudhakar

Principal

Vaagdevi Degree & P.G. College

Kishanpura, Hanumakonda.

DEPARTMENT OF TELUGU, FACULTY OF ARTS
KAKATIYA UNIVERSITY, WARANGAL
B.A., II Year Syllabus - 2017-2018
Second Language 2016-17
SEMESTER - III

UNIT - I ప్రాచీన కవిత్వం

1. ధర్మజుని వాక్చాతుర్యం
(ఉద్యోగ పర్వం, తృతీయాశ్వాసము 3-34) - తిక్కన
2 విభీషణ శరణాగతి (గంగనాథ రామాయణం)- గోనబుద్ధారెడ్డి
3 గుణనిధి కథ - శ్రీనాథుడు

UNIT - II ఆధునిక కవిత్వం

1 రైతు ప్రశస్తి (రైతు రామాయణం) - వానమామలై జగన్నాథాచార్యులు
2 గుడిసెలు కాలిపోతున్నై - బోయి భీమన్న
3 ఆర్తగీతం - దేవరకొండ బాలగంగాధర తిలక్

UNIT - III వచన విభాగం

1 అర్ధరాత్రి అరుణోదయం (జీవనయానం) - దాశరథి రంగాచార్య
2 సి.పి. బ్రౌన్ సాహిత్య సేవ - జూనుమట్ది హనుమచ్ఛాస్త్రి
3 కొండమల్లెలు (కథ) - ఇల్లిందుల సరస్వతీదేవి

UNIT - IV వచన విభాగం

1 చలిచీమలు (సాంఘిక నాటకం) : పి.వి రమణ

Principal
Vaagdevi Degree & P.G. College

Dean
Faculty of Arts
Kakatiya University
Warangal-506 009

DEPARTMENT OF TELUGU, FACULTY OF ARTS
KAKATIYA UNIVERSITY, WARANGAL
B.A., II Year Syllabus - 2017-2018
Second Language 2016-17
SEMESTER - IV

UNIT - I ప్రాచీన కవిత్వం

1 నారద గానమాత్సర్యం (కళా పూర్ణోదయం) - పింగళి సూరన
2 వాగ్దాన భంగం - ఆసూరిమరింగంటి వేంకట నరసింహాచార్యులు
3 నారసింహ శతకం (నందిని పరిణయం) - ధర్మపురి శేషప్ప

UNIT - II ఆధునిక కవిత్వం

1 గురుదక్షిణ (విజయా విజయం) - అంబటి లక్ష్మినరసింహారాజు
2 నరుడ నేను, నరుడ నేను - కాళోజి
3 దేవరకొండ దుర్గం - ముకురాల రామారెడ్డి

UNIT - III వచన విభాగం

1 నివురు తొలగిన నిప్పు (కథ) - పోల్కంపల్లి శాంతాదేవి
2 మన గ్రామ నామాలు - కపిలవాయి లింగమూర్తి

UNIT - IV వ్యాకరణం

1 అలంకారాలు
2 ఛందస్సు

Yogdevi Degree & P.G. College, Kishanpura, Hanumakonda

Principal
Yogdevi Degree & P.G. College
Kishanpura, Hanumakonda

Dean
Faculty of Arts
Kakatiya University
Warangal-506 009

C.B.C.S Pattern Syllabus from 2019-2010 onwards
B.A., B.Sc., B.Com. & B.BA
1st Semester IInd Languages - Telugu

Unit-I ప్రాచీన కవిత్వం

1) శకుంతలోపాఖ్యానం- నన్నయ
2) గోదగూచి కథ - పాల్కురికి సోమనాధుడు
3) సంవరణుడి తపస్సు-అద్దంకి గంగాధరుడు

Unit-II ఆధునిక కవిత్వం

1) కాసులు-గురజాడ అప్పారావు
2) రాజు-కవి-దా.గుఱ్ఱం జాషువా
3) గంగిరెద్దు-దా॥ పల్లా దుర్గయ్య
4) జయభేరి-శ్రీ శ్రీ

Unit-III వచన కవిత్వం

రుద్రమదేవి (నవల) - ఒద్దిరాజు సోదరులు

Unit-IV భాషా భాగాలు-వ్యాకరణం

పర్యాయ పదాలు, నానార్థాలు, సంధులు, సమాసాలు, తెలుగు వాక్యం

Vaagdevi Degree & P.G. College Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

C.B.C.S Pattern Syllabus from 2019-2010 onwards
B.A., B.Sc., B.Com. & B.B.A.
2nd Semester IInd Languages - Telugu

Unit -I ప్రాచీన కవిత్వం

1) గజేంద్ర మోక్షం-పోతన
2) హనుమత్ సందేశం-మొల్ల
3) సుభాషితాలు-వేనుగు లక్ష్మణ కవి

Unit -II ఆధునిక కవిత్వం

1) స్నేహలత లేఖ-రాయప్రోలు సుబ్బారావు
2) అంతర్నాదం-దాశరథి కృష్ణమాచార్యులు
3) ప్రపంచపదులు-డా॥ సి.నారాయణరెడ్డి
4) అల్విదా-కౌముది

Unit -III వచన విభాగం

1) యుగాంతం-నెల్లూరి కేశవ స్వామి
2) ఎంకన్న - ఆచార్య పాకాల యశోదారెడ్డి
3) మామిడి పండు - సురవరం ప్రతాపరెడ్డి
4) మా ఊరుపోయింది-దేవులపల్లి వేంకట కృష్ణశాస్త్రి

Unit -IV ఛందస్సు

ఉత్పలమాల, చంపకమాల, శార్దూలం, మత్తేభం, ఆటవెలది, తేటగీతి, ద్విపద, సీసం, కందం, ఉత్సాహం, తరళం, స్రగ్ధర, మహాస్రగ్ధర, ముత్యాలసరం

Vaagdevi Degree & P.G. College Kishanpura, Hanumakonda

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY, WARANGAL
B.A., B.Sc., B.Com. & B.B.A (CBCS)
Syllabus - 2020
Telugu (Second Language)
3rd Semester

Unit -I ప్రాచీన పద్యభాగం

1) ధర్మజుని వాక్చాతుర్యం - తిక్కన
2) విభీషణ శరణాగతి - గోన బుద్ధారెడ్డి
3) గుణనిధి కథ - శ్రీనాథుడు

Unit -II ఆధునిక పద్యభాగం

1) రైతు ప్రశస్తి - వానమామలై జగన్నాథాచార్యులు
2) గురుదక్షిణ - అంబటి లక్ష్మీనరసింహారాజు
3) గుడిసెలు కాలిపోతున్నై - డా॥ బోయి భీమన్న

Unit -III అలంకారాలు

శబ్దాలంకారాలు: వృత్త్యనుప్రాస,ఛేకానుప్రాస, లాటానుప్రాస, అంత్యానుప్రాస,యమకం, ముక్తపదగ్రస్తాలంకారాలు

అర్థాలంకారాలు: ఉపమ, ఉత్ప్రేక్ష, రూపక, స్వభావోక్తి, ఉల్లేఖ, అర్థాంతరన్యాస, శ్లేష, దృష్టాంతాలంకారాలు

పాఠ్యగ్రంథం: తెలుగు అకాడమీ వారి "సాహితీ కిన్నెర" తెలుగు వాచకం

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda. ★

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY, WARANGAL
B.A., B.Sc., B.Com. & B.B.A (CBCS)
Syllabus - 2020
Telugu (Second Language)
4th Semester

Unit -I ప్రాచీన పద్యభాగం

1) నారద గానమాత్సర్యం - పింగళి సూరన
2) వాగ్ధాన భంగం - అసూరి మరింగంటి వేంకట నరసింహాచార్యులు
3) నారసింహ శతకం - ధర్మపురి శేషప్ప

Unit -II ఆధునిక పద్యభాగం

1) నరుడ నేను, నరుడ నేను - కాళోజీ
2) ఆ ర్తగీతం - దేవరకొండ బాలగంగాధర తిలక్
3) దేవరకొండ దుర్గం - డా॥ ముకురాల రామారెడ్డి

Unit -III వచన విభాగం

1) అర్ధరాత్రి అరుణోదయం - దాశరథి రంగాచార్య
2) సి.పి బ్రౌన్ సాహిత్య సేవ - జానమద్ది హనుమచ్ఛాస్త్రి
3) మన గ్రామ నామాలు - డా॥ కపిలవాయి లింగమూర్తి
4) నివురు తొలగిన నిప్పు - పోల్కంపల్లి శాంతాదేవి
5) కొండమల్లెలు - ఇల్లిందల సరస్వతీదేవి

పాఠ్యగ్రంథం: తెలుగు అకాడమీ వారి "సాహితీ కిన్నెర" తెలుగు వాచకం

Vaagdevi Degree & P.G. College, Hanamkonda, Warangal Urban

Principal
Vaagdevi Degree & P.G. College

KAKATIYA UNIVERSITY, WARANGAL
B.A., B.Sc., B.Com. & B.B.A (CBCS)
Syllabus - 2021-2022
Telugu (Second Language)
5th Semester

Unit -I **కవితా ప్రక్రియలు**

1) పద్యం
2) పాట
3) వచన కవిత
4) మినీ కవితా రూపాలు,
   హైకూ, సానీలు మినీ కవితలు
5) రుబాయీలు, గజల్

Unit -II **తెలుగు వ్యాసం**

6) వ్యాసం నిర్వచనం, లక్షణాలు
7) తెలుగు వ్యాస పరిణామక్రమం
8) వ్యాస రచనా పద్ధతులు
9) వ్యాస రచన భాషా ప్రయోగాలు
10) వ్యాసం -వస్తు వైవిధ్యం

Unit -III **వచన సాహిత్యం**

11) అధ్యయన-సంస్కృతి
12) సాహిత్య అధ్యయనం ప్రయోజనాలు
13) ముందుమాట
14) పుస్తక సమీక్ష
15) జానపద సాహిత్య పరిచయం

17/6/24
Chairman
Board of Studies in Telugu
KAKATIYA UNIVERSITY
WARANGAL-A.P.

Principal
Bhagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY, WARANGAL
B.A., B.Sc., B.Com. & B.B.A (CBCS)
Syllabus - 2021-2022
Telugu (Second Language)
6th Semester

Unit-I సాహిత్య ప్రక్రియల పరిచయం

1) నాటకం
2) నవల
3) కథానిక
4) జీవిత చరిత్ర
5) ఉపన్యాస కళ

Unit-II జర్నలిజంలో మౌలికాంశాలు

6) వార్త - నిర్వచనం, లక్షణాలు
7) లీడ్ - ఎడిటింగ్
8) వార్తా కథనాలు
9) అనువాదం
10) ఇంటర్వ్యూలు

Unit-III ప్రాజెక్టు పరిచయం

11) ప్రాజెక్టు
12) అధ్యయనం
13) పరికల్పన
14) నివేదిక

17/6/2024
Chairman
Board of Studies in Telugu
KAKATIYA UNIVERSITY
WARANGAL

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

UNIT- IV **Concepts of Computers & Bioinformatics**

4.1 Usage of MS DOS commands: Basic concept of Internal & External commands, directory & file commands, copying, erasing, renaming, and displaying files.

4.2 Microsoft word: Concept of toolbar, character, paragraph & document formatting, drawing tool bar, header, footer, document editing, page setup, short cut keys, text & graphics.

4.3 Microsoft power point: Slide presentation, slide layout & design, custom animation, image importing, slide transition.

4.4 Bioinformatics - Databases – (Nucleic acid and protein), Introduction to genomics and proteomics.

4.5. Data retrieval toos – (BLAST, PubMED)

Practical Paper - II

1. Estimation of DNA by diphenylamine method
2. Estimation of RNA by orcinol method
3. Finding statistical significance of a given data using chi – square test.
4. Graphical representation of data (Histograms, frequency polygen, Pie diagram)
5. Acquaintance with the Biological databases through Internet
6. Micro soft Power point presentation.

Spotters :

1. TMV
2. B-DNA
3. Z-DNA
4. Replication fork
5. Okazakifragment
6. SOS repair
7. Probability theorems
8. Test of hypothesis
9. F-test
10. Biological databases
11. NCBI
12. BLAST

Recommended Books

1. Molecular Biology - Freifelder
2. Cell & Moelcular Biology – Schwann Series
3. Cell and Molecular Biology - By De Robertis
4. Cell and Molecular Biology - By Lodish
5. Basics in Computers – MS office
6. Biometry - By Sokal and Rohlf W.H. Freeman

Practical paper - III

1. Qualitative tests of Sugars, amino acids and lipids
2. Estimation of proteins by Biurate method
3. Estimation of total sugars by Anthron method
4. Reducing sugars DNS method
5. Separation of protein by SDS – PAGE.
6. Separation of amino acids by paper chromatography, TLC

Spotters

1. Cellulose
2. Peptidoglycan
3. Streptomycin
4. Cholesterol
5. Lock and Key model
6. Xerophthalmia
7. RUBISCO
8. Albinism
9. ATP synthase
10. Centrifuge
11. Microscope
12. Spectrophotometer

REFERENCE BOOKS

1. Lehninger Principles of Biochemistry By: David L. Nelson and Cox
2. Biochemistry By: Rex Montgomery
3. Harper's Biochemistry By: Robert K. Myrray
4. Enzymes By:Trevor Palmer
5. Enzyme structure and mechanism By: AlanFersht
6. Principles of Biochemistry By: Donald J. Voet, Judith G.Voet, Charlotte W.Pratt
7. Analytical Biochemistry By Cooper
8. Principles and techniques of Biochemistry and Molecular Biology Edited By Keith Wilson and John Walker
9. Experimental Biochemistry: A Student Companion by Sashidhar Beedu et al
10. Practical Biochemistry By Plummer

CORE-I: PRACTICALS

1. Microscopic observation of cells: bacteria, fungi, plant and animal
2. Preparation of different stages of Mitosis (onion root tips)
3. Preparation of different stages of Meiosis (grasshopper testis)
4. Preparation of Polytene chromosome from Drosophila salivary gland
5. Monohybrid and dihybrid ratio in Drosophila
6. Monohybrid and dihybrid ratio in Maize
7. Problems on co-dominance, epistasis, two point and three point test cross, gene mapping.
8. Statistical applications of Hardy-Weinberg Equilibrium

Spotters:

1. Prokaryotic Cell(Bacteria),
2. Mitochondria,
3. Chlorolplast,
4. Polytene Chromosomes,
5. Test Cross,
6. Blood Grouping,
7. Hemophilia Pedigree,
8. Crossing Over
9. Synaptonemal Complex,
10. Nucleosome Model.

REFERENCE BOOKS

1. Cell & Molecular Biology. E.D.D De Robertis & E.M.F De Robertis, Waverly publication
2. An introduction to Genetic Analysis by Anthony, J.F. J.A. Miller, D.T. Suzuki, R.C. Richard Lewontin, W.M-Gilbert, W.H. Freeman publication
3. Principles of Genetics by E.J.Gardner and D.P. Snusted. John Wiley & Sons, New York
4. The science of Genetics, by A.G. Atherly J.R. Girton, J.F. Mcdonald, Saundern College publication
5. Principles of Genetics by R.H. Tamarin McGrawhill
6. Theory & problems in Genetics by Stansfield, Schaum out line series McGrawhill
7. Molecular Cell Biology Lodish, H., Baltimore, D; fesk, A., Zipursky S.L., Matsudaride, P. and Darnel. American Scientific Books. W.H. Freeman, New York
8. The cell: A molecular approach. Geoffrey M Cooper, Robert E Hausman, ASM press
9. Cell and Molecular Biology, Concepts and Experiments – Gerald Karp, John Wiley & Sons, Inc.
10. Cell Biology And Genetics by P.K. GUPTA

Chair Person
Board of Studies in Biotechnology
Kakatiya University
Warangal - 506 009 (A.P.) INDIA

Principal
VAAGDEVI DEGREE & P.G. COLLEGE
Kishanpura, Hanamkonda

PRACTICAL PAPER – V

1. Isolation of DNA from plant, animal/bacterial cells
2. Isolation of plasmid DNA
3. Analysis of DNA by agarose gel electrophoresis
4. Restriction digestion of DNA
5. PCR
6. Competent cell preparation, transformation and selection.

SPOTTERS

1. Spliceosome
2. RNAP
3. t – RNA
4. Lac Operon
5. 5 – cap
6. PBR 322
7. Reverse transcriptase
8. Shine – Dalgarno sequence
9. Taq DNA polymerase
10. YAC

REFERENCE BOOKS

1. Molecular Biology of the Gene - By Watson, Hopkins, Goberts, Steitz and Weiner (Pearson Education)
2. Cell and Molecular Biology - By Robertis&Robertis, Publ: Waverly
3. Text Book of Biotechnology - By H.K. Das (Wiley Publications)
4. Gene Structure & Expression - By J.D. Howkins, Publ: Cambridge
5. Genetic Engineering - By R. Williamson, Publ: Academic Press
6. Principles of Gene Manipulation - By R.W. Old & S.B. Primrose, Publ: Blackwell
7. Genes - By B. Lewin - Oxford Univ. Press
8. Molecular Biology &Biotechnol. - By H.D. Kumar, Publ: Vikas
9. Methods for General & Molecular Bacteriology - By P. Gerhardf et al., Publ: ASM
10. Molecular Biotechnology - By G.R. Click and J.J. Pasternak, Publ: Panima
11. Genes and Genomes – By Maxine Singer and Paul Berg
12. Principles of Gene Manipulation - By R.W. Old & S.B. Primrose, Publ: Blackwell
13. Genes - By B. Lewin - Oxford Univ. Press
14. Molecular Biology &Biotechnol. - By H.D. Kumar, Publ: Vikas
15. Molecular Biology - By D. Freifelder, Publ: Narosa

Board of Studies
Kakatiya University
Warangal

Principal
VAAGDEVI DEGREE & P.G. COLLEGE
Kishanpura, Hanamkonda.

Practicals Paper - IV:

1. Calculate mean length, Standard deviation and Standard error of given leaves/pod material.
2. Calculate the chi-square test (x^2) value by separating seeds and counting the number of seeds by using dihybrid ratio 9:3:3:1.
3. Calculate the chi-square test (x2) value by a tossing the coin 100 times.
4. Calculate the standard deviation from the following data.
   Variables (x) = 10,13,17,22,27,30,31,32
5. From the following data recorded on the height of plants of varieties, G-65 and PS-16 of mungbean; find out which variety is more consistent.

Variety G-65	25	50	45	30	70	42	36	48	34	60
Variety PS-16	10	70	50	20	95	55	42	60	48	80

6. Explain how MS WORD in used in writing a document and give a list of icons found on Taskbar
7. Briefly describe how a power point file is created and how an image is imported onto a slide
8. Define Bioinformatics and its applications in human welfare
9. Write a note on Biological databases
10. Define BLAST and how target sequence is used for comparative analysis

Spotters:

1. ANOVA
2. Histogram
3. Frequency polygon
4. Student t-test
5. Coefficient of correlation
6. Input Devices (Keyboard and Mouse)
7. Hard disc and pen drive

References:

1. Reema Tharaja, Fundamentals of Computers, Oxford 2015
2. Computer Fundamentals, by A. Goel, Pearson Education 2010
3. Introduction to Computer Applications and Concepts - John Ward
4. Sanjay Saxena, MS Office 2000, Vikas Publishing House Pvt. Ltd.
5. Fundamentals of Bioinformatics – Promponas
6. Bioinformatics: A Practical Guide to the Analysis of Genes and Proteins, Second
7. Edition by Andreas D. Baxevanis, B. F. Francis Ouellette, Wiley-Interscience
8. Bioinformatics: Sequence and Genome Analysis by David W. Mount, Cold Spring Harbor Laboratory Press
9. Statistical Methods, SP Gupta
10. Fundamentals of Mathematical and statustucs, SC Gupta and kapoor
11. Statistical methods in biological and Health Science, J.S. Milton and J.O Tsokan
12. William, Sawyer, information Technology, Tata McGraw Hill Edition
13. Sanyay Saxena MS Office 2000, vikas publication house pvt. Ltd.

Vaagdevi ... P.G. College ... VAAGDEVI COLLEGE ... Kishanpura, Hanumakonda.

Principal
VAAGDEVI DEGREE & P.G. COLLEGE
Kishanpura, Hanamkonda.

CORE-VI: PRACTICALS

1. Screening of Microorganisms (primary selection, secondary selection)
2. Production of Citric acid
3. Screening of amylase producing microorganisms
4. Isolation of microorganisms from spoilage food.
5. Production of wine using common yeast
6. Production of hydrogen or biogas using cow/cattle dung

SPOTTERS:

1. Fermented food
2. Bioreactor
3. SCP
4. Insulin
5. Biogas
6. Amylase
7. MAB
8. Penicillin
9. Down stream process
10. Methane

REFERENCE BOOKS

1. Text Book of Biotechnology - By H.K. Das (Wiley Publications)
2. Biotechnology -By H.J. Rehm and G. Reed. VIH Publications, Germany
3. Biogas Technology - By b.T. Nijaguna
4. Biotechnology - By K. Trehan
5. Industrial Microbiology - By L.E. Casida
6. Food Microbiology - By M.R. Adams and M.O. Moss
7. Introduction to Biotechnology - By P.K. Gupta
8. Essentials of Biotechnology for Students - By Satya N. Das
9. Bioprocess Engineering - By Shuler (Pearson Education)
10. Essentials of Biotechnology - By Irfan Ali Khan and AtiyaKhanum (Ukaaz Publications)

B.Sc (CBCS) Botany-I year
Semester-I - Paper-I
Microbial Diversity of Lower Plants

Practical Syllabus (45 hours)

1. Study of viruses and bacteria using electron micrographs (photographs). (3h)
2. Gram staining of Bacteria. (3h)
3. Study of symptoms of plant diseases caused by viruses, bacteria, Mycoplasma and fungi:

   Viruses: Tobacco mosaic

   Bacteria: Angular leaf spot of cotton and Rice tumgro - Viral

   Mycoplasma: Little leaf of Brinjal and Leaf curl of papaya (3h)

   Fungi: White rust on Crucifers, Rust on wheat & Tikka disease of Groundnut. (6h)
4. Vegetative and reproductive structures of the following taxa:

   Algae: *Oscillatoria*, *Nostoc*, *Volvox*, *Oedogonium*, *Chara* , *Ectocarpus* and *Polysiphonia*. (6 h)

   Fungi: *Albugo*, *Mucor*, *Saccharomyces*, *Penicillium*, *Puccinia* and *Cercospora* (6h)
5. Section cutting of diseased material infected by Fungi and identification of pathogens as per theory syllabus. White rust of Crucifers, Rust on wheat & Tikka disease of Groundnut. (9h)
6. Lichens: Different types of thalli and their external morphology (3 h).
7. Examination of important microbial, fungal and algal products: Biofertilizers, protein capsules, antibiotics, mushrooms, Agar-agar etc. (3h)
8. Field visits to places of algal / microbial / fungal interest (e.g. Mushroom cultivation, water bodies). (3h)

Vaagdevi Degree & P.G. College, Kishanpura, Hanumakonda.

A. Sandhadalan

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

2016-17 2014-15 2015-16

Vaagdevi Degree & PG College

UG I SEM PAPAER I (2017 – 2018)

PRACTICAL

Sem-I ; Paper-I - Practical Syllabus.

25 MARKS
2 HOURS

I. IDENTIFY THE GIVEN MATERIAL A,B & C

1. OSCILLATORIA
2. NOSTOC } CYANOBACTERIA [A]
3. VOLVOX
4. OEDOGONIUM
5. CHARA } CHLOROPHYCEAE [B]
6. ECTOCARPUS → PHAEOPHYCEAE
7. POLYSIPHONIA → RHODOPHYCEAE } [C]

II. GRAM STAINING

8. GRAM STAINING (BACTERIA) TECHNIQUE [D] [4 MARKS]

III.

9. ALBUGO
10. PUCCINIA
11. CERCOSPORA } [E] [5 MARKS]

IV. IDENTIFY THE GIVEN SPECIMEN [F,G&H]

FUNGAL

12. ANTIBIOTIC
13. MUSHROOM
14. CRUSTOSE

BACTERIAL

15. CITRUS CANKER
16. ANGULAR LEAF SPOT OF COTTON
17. BIOFERTILIZER

VIRAL

18. TMV
19. RICE TUNGRO
20. LEAF CURL OF PAPAYA

COMMENT ON GIVEN SLIDE I & J

ALGAE

21. CHARA SEXUAL
22. OEDOGONIUM
23. SPIRULINA

FUNGI

24. PENICILLIUM ASEXUAL
25. PUCCINIA
26. YEAST

RECORD [2 MARKS]

Vaagdevi Degree & P.G. College, Kishanpura, Hanumakonda.

A. [signature]

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

[2016-17]

2018-19.

Vaagdevi Degree & PG College

UG – SEM II PAPAER II

B.Sc – BOTANY

em-II ; Paper-II - Practical Syllabus. 25 ½ HOURS

25 MARKS

I. PREPARE SOUBLE STAINED PERMANENT MOUNT OF GIVEN MATERIAL – A (PTERIDOPHYTA)

1. LYCOPODIUM STEM T.S [7 MARKS]
2. EQUISETUM T.S
3. MARSELEA T.S

II. PREPARE DOUBLE STAINED PERMANENT MOUNT OF B (GYMNOSPERMS) [8 MARKS]

1. PINUS NEEDLE T.S
2. GNETUM STEM T.S

III. IDENTIFY THE GIVEN SPECIMENS (C,D,E & F) 4×1=4

1. BRYOPHYTA – MARECHANTIA WITH GEMMA CUP
2. BRYOPHYTA – POLYTRICUM PLANT
3. PTERIDOPHYTA – EQUISETUM PLANT
4. GYMNOSPERMS – PINUS FEMALE CONE

IV. IDENTIFY THE GIVEN SLIDES (G,H & I) 4×1=4

1. BRYOPHYTA - MARCHANTIA SPOROPHYTE. L.S
2. BRYOPHYTA - ANTHOCEROS SPOROPHYTE. L.S
3. PTERIDOPHYTA - EQUISETUM SPORES WITH ELATERS
4. GYMNOSPERMS – PINUS OVULE. V.S

V. RECORD 2 M

Vaagdevi Degree & P.G. College Kishanpura, Hanumakonda.

A. Sreelatha Rao

Principal

Vaagdevi Degree & P.G. College

Kishanpura, Hanumakonda.

Practical-II

Practical - II: Anatomy, Embryology, Taxonomy and Medicinal Botany

(Total Hours of Laboratory Exercises: 90 @ 3 h / Week in 30 Sessions)

Suggested Laboratory Exercises:

1. Demonstration of double staining technique.
2. Tissue organization in root and shoot apices using permanent slides (3 h)
3. Preparation of double staining slides (3 h)

   Primary structure: Root - *Cicer, Canna*; Stem – *Tridax, Sorghum*

   Secondary structure: Root – *Tridax* sp.; Stem –*Pongamia* (6 h)

   Anomalous secondary structure: Examples as given in theory syllabus. (3 h)
4. Stomatal types using epidermal peels. (6 h)
5. Microscopic study of wood in T.S., T.L.S. and R.L.S. (3 h)
6. Structure of anther and microsporoganesis using permanent slides. (6 h)
7. Structure of pollen grains using whole mounts (*Catharanthus, Hibiscus, Acassia*, Grass). (3 h)
8. Pollen viability test using *in- vitro* germination (*Catharanthus*). (3 h)
9. Study of ovule types and developmental stages of embryosac. (3 h)
10. Structure of endosperm (nuclear and cellular); Developmental stages of dicot and monocot Embryos using permanent slides. (3 h)
11. Isolation and mounting of embryo (using *Symopsis / Senna / Crotalaria*) (3 h)
12. Systematic study of locally available plants belonging to the families prescribed in theory syllabus (Minimum of one plant representative for each family) (18 h)
13. Demonstration of herbarium techniques. (3 h)
14. Local field visits to study the vegetation and flora. (6 h)
15. Detailed morphological and anatomical study of medicinally important part(s) of locally available plants (a minimum 10 plants) used in traditional medicine. (12 h)
16. Field visits to identify and collect ethno medicinal plants used by local tribes/folklore. (3 h)
17. Preparation and submission of 25 herbarium specimens for evaluation during the practical examination.

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Practcal - IV: Physiology, Tissue Culture, Biotechnology, Seed Technology and Horticulture

(Total Hours of Laboratory Exercises: 90 @ 3 h / Week in 30 Sessions)

Suggested Laboratory Exercises:

1. Determination of osmotic potential of vacuolar sap by plasmolytic method using leaves of *Rhoeo / Tradescantia.* (3 h)
2. Determination of rate of transpiration using cobalt chloride method/Ganong's photometer. (6 h)
3. Determination of stomatal frequency using leaf epidermal peelings/impressions. (3 h)
4. Study of mineral deficiency symptoms using plant material/photographs. (3 h)
5. Determination of catalase activity using potato tubers by titration method. (3 h)
6. Separation of chloroplast pigments using paper chromatography technique. (3 h)
7. Estimation of protein by biuret method. (3 h)
8. Isolation and estimation of DNA. (6 h)
9. Testing of seed viability using 2, 3, 5-triphenyl tetrazolium chloride (TTC). (3 h)
10. Study of non-dormant seed germination: Breaking of seed dormancy caused by hard seed coat using scarification technique. (3 h)
11. Demonstration of seed dressing using fungicide to control diseases. (3 h)
12. Demonstration of seed dressing using biofertilizer (*Rhizobium)* to enrich nutrient supply. (3 h)
13. Study on tools/equipment used in horticulture: Rake, hoe, spade, trowel, digger, pick-axe, shade net, glass house and mist chamber (6 h)
14. Demonstration of vegetative plant propagation: Rooting of cuttings – Leaf and Stem; layering; stem, bud and wedge grafting (6 h)
15. Study on the application of plant growth regulator (IBA) for rooting of cuttings using ornamental plants (6 h)
16. Knowledge of instruments and facilities used in plant tissue culture Using equipment / photographs) (6 h)
17. Demonstration of micropropagation using explants like axilary buds and shoot meristems. (6 h)
18. Study of protocols and photographs/charts related to plant bio-technology: Isolation of nuclear and plasmid DNA, separation of DNA by gel electrophoresis (6 h)
19. Study of biotechnology products: Samples of antibiotics, vaccines, biofertilizers, single cell protein, cosmetics; photographs of transgenic plants, multiple shoots and Artificial / synthetic seeds (6 h)
20. Study visits to places of horticultural and biotechnological interest - Commercial nurseries/ Botanical gardens; Biotechnology R & D laboratories/Industries. (6 h)

B.Sc (CBCS) Botany-I year
Semester-I - Paper-I
Microbial Diversity of Lower Plants

Practical Syllabus

(45 hours)

1. Study of viruses and bacteria using electron micrographs (photographs). (3h)
2. Gram staining of Bacteria. (3h)
3. Study of symptoms of plant diseases caused by viruses, bacteria, Mycoplasma and fungi:
   Viruses: Tobacco mosaic
   Bacteria: Angular leaf spot of cotton and Rice tumgro Viral
   Mycoplasma: Little leaf of Brinjal and Leaf curl of papaya (3h)
   Fungi: White rust on Crucifers, Rust on wheat & Tikka disease of Groundnut. (6h)
4. Vegetative and reproductive structures of the following taxa:
   Algae: *Oscillatoria*, *Nostoc*, *Volvox*, *Oedogonium*,*Chara* ,*Ectocarpus* and *Polysiphonia*. (6 h)
   Fungi: *Albugo*, *Mucor*,*Saccharomyces*, *Penicillium*, *Puccinia* and *Cercospora* (6h)
5. Section cutting of diseased material infected by Fungi and identification of pathogens as per theory syllabus. White rust of Crucifers, Rust on wheat & Tikka disease of Groundnut. (9h)
6. Lichens: Different types of thalli and their external morphology (3 h).
7. Examination of important microbial, fungal and algal products:
   Biofertilizers, protein capsules, antibiotics, mushrooms, Agar-agar etc. (3h)
8. Field visits to places of algal / microbial / fungal interest (e.g. Mushroom cultivation, water bodies). (3h)

Vaagdevi Degree & P.G. College ★ Kishanpura ★

Principal
VAAGDEVI DEGREE & P.G. COLLEGE
Kishanpura, Hanamkonda.

(13)

B.Sc (CBCS) Botany- I year
Semester-II - Paper-II
Bryophytes, Pteridophytes, Gymnosperms and Paleobotany

(45 hours)

Practical Syllabus – 2016

1:Study of Morphology (vegetative and reproductive structures) and anatomy of the following Bryophytes: *Marchantia*, *Anthoceros* and *Polytrichum*. (9 h)

2. Study of Morphology (vegetative and reproductive structures) and anatomy of the following Pteridophytes: *Lycopodium*, *Equisetum* and *Marsilea*. (9 h)

3. Study of Anatomical features of *Lycopodium* stem, *Equisetum* stem and *Marsilea* petiole & rhizome by preparing double stained permanent mounts. (12h)

4. Study of Morphology (vegetative and reproductive structures) of the following taxa: Gymnosperms: *Pinus* and *Gnetum*. (6 h)

5. Study of Anatomical features of *Pinus* needle and *Gnetum* stem by preparing double stained permanent mounts. (6h)

6. Fossil forms using permanent slides / photographs: *Rhynia* and *Cycadeoidea*. (3h)

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda. ★

Principal
VAAGDEVI DEGREE & P.G. COLLEGE
Kishanpura, Hanamkonda.

[2017-2018]

Vaagdevi Degree & PG College

UG – SEM II PAPAER II

B.Sc – BOTANY

Sem-II ; Paper-II - Practical Syllabus.

25 ½ HOURS

25 MARKS

I. PREPARE SOUBLE STAINED PERMANENT MOUNT OF GIVEN MATERIAL – A (PTERIDOPHYTA) [7 MARKS]

1. LYCOPODIUM STEM T.S
2. EQUISETUM T.S
3. MARSELEA T.S

II. PREPARE DOUBLE STAINED PERMANENT MOUNT OF B (GYMNOSPERMS) [8 MARKS]

1. PINUS NEEDLE T.S
2. GNETUM STEM T.S

III. IDENTIFY THE GIVEN SPECIMENS (C,D,E & F) 4×1=4

1. BRYOPHYTA – MARECHANTIA WITH GEMMA CUP
2. BRYOPHYTA – POLYTRICUM PLANT
3. PTERIDOPHYTA – EQUISETUM PLANT
4. GYMNOSPERMS – PINUS FEMALE CONE

IV. IDENTIFY THE GIVEN SLIDES (G,H & I) 4×1=4

1. BRYOPHYTA - MARCHANTIA SPOROPHYTE. L.S
2. BRYOPHYTA - ANTHOCEROS SPOROPHYTE. L.S
3. PTERIDOPHYTA - EQUISETUM SPORES WITH ELATERS
4. GYMNOSPERMS – PINUS OVULE. V.S

V. RECORD 2

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda. ★

Principal
VAAGDEVI DEGREE & P.G. COLLEGE
Kishanpura, Hanamkonda.

B.Sc (CBCS) BOTANY- II YEAR
Semester-III - Paper-III
Taxonomy of Angiosperms and Medicinal Botany

Practical syllabus

(45 hours)

stematic study of locally available plants belonging to the families prescribed in theory labus (24h)

inimum of one plant representative for each family)

monstration of herbarium techniques. (3 h)

entification,medicinal value & active principle present in the llowing plants : Tulasi (*Ocimum sanctum*), Karakaya (*Terminalia hebula*), Kalabanda (*Aloe vera*). (6 h)

hnomedicinal value/practice of the following plants :

Aswagandha (*Withania somnifera*), Sarpagandha (*Rauwolfia serpentina*), Amla (*Phyllanthus emblica*) and Brahmi (*Bacopa monnieri*). (6h)

Pharmacognosy:

Powder analysis : Pippalu (*Piper longam)*, Nela usiri (*Phyllanthus niruri*),

Study of Organoleptic (sectional study) of the following:

Tippateega (*Tinospora cordifolia*)and Turmeric (*Curcuma longa*). (6h)

Candidate have to submit at least 30 herbarium sheets

Vaagdevi Degree & P.G. College Kishanpura, Hanamkonda.

Principal
VAAGDEVI DEGREE & P.G. COLLEGE
Kishanpura, Hanamkonda.

(2017-18)

B.Sc BOTANY II YEAR SEM III PAPER III PRACTICALS

Vaagdevi Degree & PG College

DEPARTMENT OF BOTANY

Sem-III

Paper-III - Practical Syllabus.

MARKS – 25

TIME – 2 ½ HOURS

TAXONOMY OF ANGIOSPERMS AND MEDICINAL BOTANY

I. TECHNICAL DESCRIPTION OF THE GIVEN PLANT TWIG 'A' — 9 MARKS

POLYPETALE	GAMOPETALAE	MONOCLAMIDAE	MONOCOTELEDONS
1. CAPPARIDACEAE	3. ASTERACEAE	5. EUPHORBIACEAE	6. POACEAE
2. FABACEAE	4. LAMIACEAE		

II. IDENTIFY THE GIVEN MATERIAL 'B' & WRITE ITS MEDICAL PROPERTIES – 3 MARKS

1. PIPPALLU – (PIPER LONGAM)
2. NELA USIRI – (PHYLLANTHUS NIRURI) amarus

III. IDENTIFY THE SPECIMEN 'C' & WRITE ORGANOLEPTIC EVALUATION - 3 MARKS

1. TIPPATEEGA – (TINOSPORA CARDIFOLIA)
2. TURMERIC – (CURCUMA LONGA)

IV. IDENTIFY THE GIVEN MATERIAL 'D' & DISCUSS THE ETHNO MEDICINAL VALUE OF IT – 3 MARKS

1. ASWAGANDA – WITHANIA SOMINIFERA
2. SARPAGANDA – RAUWOLFIA SERPENTAINA
3. AMLA – PHILLANTHUS EMBLICA
4. BRAHMI – BACOPA MONNIERI

V. IDENTIFY THE GIVEN MATERIAL 'E' WRITE ACTIVE PRINCIPLE AND USES – 3 MARKS

1. TULASI – OSCIMUM SANCTUM
2. KARAKAYA – TERMINALIA CHEBULA
3. KALABANDA – ALOE VERA

VI. HERBARIUM (SUBMIT AT LEAST 30 HERBARIUM SHEETS) - 2 MARKS

VII. RECORD 2 MARKS

Vaagdevi Degree & P.G. College Kishanpura, Hanumakonda.

Principal
VAAGDEVI DEGREE & P.G. COLLEGE

(10)

B.SC (CBCS) BOTANY- II YEAR
Semester-IV- Paper IV
Plant Anatomy, Embryology and Palynology

Practical syllabus

(45 hours)

Suggested Laboratory Exercises:

1. Demonstration of double staining technique. (3 h)
2. Tissue organization in root and shoot apices using permanent slides (3 h)
3. Preparation of double stained Permanent slides

Primary structure: Root - *Cicer*, *Canna*; Stem – *Tridax*, *Sorghum* (6 h)

Secondary structure: Root – *Tridax* sp.; Stem –*Pongamia*

Anomalous secondary structure: Examples as given in theory syllabus. (6 h)

4. Stomatal types using epidermal peels. (3 h)
5. Microscopic study of wood in T.S., T.L.S. and R.L.S. (6 h)
6. Structure of anther and microsporogenesis using permanent slides. (3 h)
7. Structure of pollen grains using whole mounts - *Hibiscus*, *Acacia* and Grass). (3 h)
8. Pollen viability test using Evans Blue – *Hibiscus* (3 h)
9. Study of ovule types and developmental stages of embryosac. (3 h)
10. Structure of endosperm (nuclear and cellular); Developmental stages of dicot and monocot embryos using permanent slides. (3 h)
11. Isolation and mounting of embryo (using *Cymopsis / Senna / Crotalaria*) (3 h)

Vaagdevi Degree & P.G. College Kishanpura, Hanamkonda.

A. Sridhar Rao
Principal
VAAGDEVI DEGREE & P.G. COLLEGE
Kishanpura, Hanamkonda.

B.Sc (CBCS) Botany-I year
Semester-I - Paper-I
Microbial Diversity of Lower Plants

Practical Syllabus (45 hours)

1. Study of viruses and bacteria using electron micrographs (photographs). (3h)
2. Gram staining of Bacteria. (3h)
3. Study of symptoms of plant diseases caused by viruses, bacteria, Mycoplasma and fungi:

   Viruses: Tobacco mosaic

   Bacteria: Angular leaf spot of cotton and Rice tungro viral (3h)

   Mycoplasma: Little leaf of Brinjal and Leaf curl of papaya (6h)

   Fungi: White rust on Crucifers, Rust on wheat & Tikka disease of Groundnut.
4. Vegetative and reproductive structures of the following taxa:

   Algae: *Oscillatoria*, *Nostoc*, *Volvox*, *Oedogonium*, *Chara* , *Ectocarpus* and *Polysiphonia*. (6 h)

   Fungi: *Albugo*, *Mucor*, *Saccharomyces*, *Penicillium*, *Puccinia* and *Cercospora* (6h)
5. Section cutting of diseased material infected by Fungi and identification of pathogens as per theory syllabus. White rust of Crucifers, Rust on wheat & Tikka disease of Groundnut. (9h)
6. Lichens: Different types of thalli and their external morphology (3 h)
7. Examination of important microbial, fungal and algal products:

   Biofertilizers, protein capsules, antibiotics, mushrooms, Agar-agar etc. (3h)
8. Field visits to places of algal / microbial / fungal interest (e.g. Mushroom cultivation, water bodies). (3h

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

2018-19

Vaagdevi Degree & PG College

UG I SEM PAPAER I (2017 – 2018)

PRACTICAL

Sem-I ; Paper - I - Practical syllabus.

25 MARKS
2 HOURS

I. IDENTIFY THE GIVEN MATERIAL A,B & C

1. OSCILLATORIA } CYANOBACTERIA [A]
2. NOSTOC
3. VOLVOX
4. OEDOGONIUM } CHLOROPHYCEAE [B]
5. CHARA
6. ECTOCARPUS → PHAEOPHYCEAE
7. POLYSIPHONIA → RHODOPHYCEAE } [C]

II. GRAM STAINING

8. GRAM STAINING (BACTERIA) TECHNIQUE [D] [4 MARKS]

III.

9. ALBUGO
10. PUCCINIA
11. CERCOSPORA } [E] [5 MARKS]

IV. IDENTIFY THE GIVEN SPECIMEN [F,G&H]

FUNGAL

12. ANTIBIOTIC
13. MUSHROOM
14. CRUSTOSE

BACTERIAL

15. CITRUS CANKER
16. ANGULAR LEAF SPOT OF COTTON
17. BIOFERTILIZER

VIRAL

18. TMV
19. RICE TUNGRO
20. LEAF CURL OF PAPAYA

V. COMMENT ON GIVEN SLIDE I & J

ALGAE

21. CHARA SEXUAL
22. OEDOGONIUM
23. SPIRULINA

FUNGI

24. PENICILLIUM ASEXUAL
25. PUCCINIA
26. YEAST

VI. RECORD [2 MARKS]

Vaagdevi Degree & P.G. College Kishanpura Hanumakonda

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

13

B.Sc (CBCS) Botany- I year
Semester-II - Paper-II
Bryophytes, Pteridophytes, Gymnosperms and Paleobotany

(45 hours)

Practical Syllabus – 2016

1.Study of Morphology (vegetative and reproductive structures) and anatomy of the following Bryophytes: *Marchantia*, *Anthoceros* and *Polytrichum*. (9 h)

2. Study of Morphology (vegetative and reproductive structures) and anatomy of the following Pteridophytes: *Lycopodium*, *Equisetum* and *Marsilea*. (9 h)

3. Study of Anatomical features of *Lycopodium* stem, *Equisetum* stem and *Marsilea* petiole & rhizome by preparing double stained permanent mounts. (12h)

4. Study of Morphology (vegetative and reproductive structures) of the following taxa: Gymnosperms: *Pinus* and *Gnetum*. (6 h)

5. Study of Anatomical features of *Pinus* needle and *Gnetum* stem by preparing double stained permanent mounts. (6h)

6. Fossil forms using permanent slides / photographs: *Rhynia* and *Cycadeoidea*. (3h)

Vaagdevi Degree & P.G. College Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY

U.G. Botany (Under CBCS)

B.Sc. Final Year (DSE-1E)

SEMESTER – V

Elective

A) Ecology & Biodiversity

Practical Syllabus

1. Study of plant communities by Quadrat Method (9h)
2. Estimation of carbonates and bicarbonates in the given water sample. (6h)
3. Determination of soil texture (composition of clay, sand silt etc.) and pH. (6h)
4. Study of morphological and anatomical characteristics of plant communities using locally available plant species: Hydrophytes (*Eichhornia, Hydrilla, Pistia, Nymphaea, Vallisneria*), Xerophytes: (*Asparagus,Opuntia, Euphorbia spp*), Halophytes (*Rhizophora, Avicennia*). (12h)
5. Value of biodiversity

   a) Medicinal value: *Catharanthus, Tinospora* and *Emblica* (12h)

   b) Timber Value: *Acacia, Tectona* and *Azardirachta*

   c) Aesthetic Value: *Mangifera, Ficus, Ocimun*

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda. ★

Principal

Vaagdevi Degree & P.G. College

Kishanpura, Hanumakonda.

2018-19

Vaagdevi Degree & PG College

UG – SEM II PAPAER II

B.Sc – BOTANY

Sem-II ; Paper-II - Practical Syllabus.

25 ½ HOURS

25 MARKS

I. PREPARE SOUBLE STAINED PERMANENT MOUNT OF GIVEN MATERIAL – A (PTERIDOPHYTA) [7 MARKS]

1. LYCOPODIUM STEM T.S
2. EQUISETUM T.S
3. MARSELEA T.S

II. PREPARE DOUBLE STAINED PERMANENT MOUNT OF B (GYMNOSPERMS) [8 MARKS]

1. PINUS NEEDLE T.S
2. GNETUM STEM T.S

III. IDENTIFY THE GIVEN SPECIMENS (C,D,E & F) 4×1=4

1. BRYOPHYTA – MARECHANTIA WITH GEMMA CUP
2. BRYOPHYTA – POLYTRICUM PLANT
3. PTERIDOPHYTA – EQUISETUM PLANT
4. GYMNOSPERMS – PINUS FEMALE CONE

IV. IDENTIFY THE GIVEN SLIDES (G,H & I) 4×1=4

1. BRYOPHYTA - MARCHANTIA SPOROPHYTE. L.S
2. BRYOPHYTA - ANTHOCEROS SPOROPHYTE. L.S
3. PTERIDOPHYTA - EQUISETUM SPORES WITH ELATERS
4. GYMNOSPERMS – PINUS OVULE. V.S

V. RECORD 2 M

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda.

A. Krishnaiah

Principal

Vaagdevi Degree & P.G. College

Kishanpura, Hanumakonda.

B.Sc BOTANY II YEAR SEM III PAPER III PRACTICALS

Vaagdevi Degree & PG College

DEPARTMENT OF BOTANY

Sem-III

Paper-III - Practical Syllabus.

MARKS – 25

TIME – 2 ½ HOURS

TAXONOMY OF ANGIOSPERMS AND MEDICINAL BOTANY

I. TECHNICAL DESCRIPTION OF THE GIVEN PLANT TWIG 'A' 9 MARKS

POLYPETALE	GAMOPETALAE	MONOCLAMIDAE	MONOCOTELEDONS
1. CAPPARIDACEAE	3. ASTERACEAE	5. EUPHORBIACEAE	6. POACEAE
2. FABACEAE	4. LAMIACEAE		

II. IDENTIFY THE GIVEN MATERIAL 'B' & WRITE ITS MEDICAL PROPERTIES – 3 MARKS

1. PIPPALLU – (PIPER LONGAM)
2. NELA USIRI – (PHYLLANTHUS NIRURI)

III. IDENTIFY THE SPECIMEN 'C' & WRITE ORGANOLEPTIC EVALUATION - 3 MARKS

1. TIPPATEEGA – (TINOSPORA CARDIFOLIA)
2. TURMERIC – (CURCUMA LONGA)

IV. IDENTIFY THE GIVEN MATERIAL 'D' & DISCUSS THE ETHNO MEDICINAL VALUE OF IT – 3 MARKS

1. ASWAGANDA – WITHANIA SOMINIFERA
2. SARPAGANDA – RAUWOLFIA SERPENTAINA
3. AMLA – PHILLANTHUS EMBLICA
4. BRAHMI – BACOPA MONNIERI

V. IDENTIFY THE GIVEN MATERIAL 'E' WRITE ACTIVE PRINCIPLE AND USES – 3 MARKS

1. TULASI – OSCIMUM SANCTUM
2. KARAKAYA – TERMINALIA CHEBULA
3. KALABANDA – ALOE VERA

VI. HERBARIUM (SUBMIT AT LEAST 30 HERBARIUM SHEETS) - 2 MARKS

VII. RECORD 2 MARKS

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda.

Principal

Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Department of Botany

Practical Paper - IV

Sem - IV

Time: 2 hrs Marks = 25

(Plant Anatomy, Embryology and palynology)

I. Prepare a double stained Permanent mount of transverse section of given material ['A'] — 9 Marks
1. Boerhaavia 2. Dracaena.

II Prepare a temporary mount of epidermal peel of given leaf material [B] and Identify the stomatal type (~~only~~ one) — [4 Marks]
1. Anamocytic 2. paracytic 3. Anisocytic & 4. ~~Dia~~cytic

III Conduct the Pollen Viability test ['C'] of
Isolate the embryo from the given material — [4 Marks]

IV Identify and describe the specimens/slides with well labelled diagram. [3X2 = 6 Marks]
(D) (a) Orthotropous (or) (b) Campylotropous [Embryology D] — ✓
(E) (a) Hibiscus pollen or (b) Acasia pollengrains [Palynology] — ✓
(F) (a) Anther T.S (or) (b) Aleurone layer [Anatomy] — ✓

V Record — [2 Marks]

Cof
20/3/18

A. [signature]
Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Sem-IV ; paper-IV ; practical Syllabus.

Vaagdevi Degree & PG College

DEPARTMENT OF BOTANY

PRACTICAL PAPER IV MARKS - 25

TIME 2 HOURS SEM IV

(PLANT ANATOMY, EMBRYOLOGY AND PALYNOLOGY)

I. PREPARE A DOUBLE STAINED PERMANENT MOUNT OF TRANSVERSE SECTION OF GIVEN MATERIAL 'A' – 9 MARKS
   a. BOERHAVIA
   b. DRACAENA

II. PREPARE A TEMPORARY MOUNT OF EPIDERMAL PEEL OF GIVEN LEAF MATERIAL 'B' AND IDENTIFY THE STOMATAL TYPE (ONLY ONE) – 4 MARKS
   a. ANAMOCYTIC
   b. PARACYTIC
   c. ANISOCYTIC
   d. DIACYTIC

III. CONDUCT THE POLLEN VIABILITY TST 'C' OR ISOLATE THE EMBRYO FROM THE GIVEN MATERIAL – 4 MARKS

IV. IDENTIFY AND DESCRIBE THE SPECIMENS / SLIDES WITH WELL LABELLED DIAGRAM (3×2=6 MARKS)
   a. ORTHOTROPHUS OR CAMPYLLOTROPHUS [EMBRYOLOGY]
   b. HIBISCUS POLLEN OR ACACIA POLLENGRAINS [PALYNOLOGY]
   c. ANTHER T.S OR ALEURONE LAYER [ANATOMY]

V. RECORD - 2 MARKS

Vaagdevi Degree & P.G. College Kishanpura, Hanumakonda.

A. Sridhar Balam

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY

U.G. Botany (Under CBCS)

B.Sc. Final Year (DSC-1E)

SEMESTER – V

(4)

Cell Biology and Genetics Practical

(45 hours)

ation of cytochemical methods: Fixation of plant material and nuclear staining

c and meiotic studies. (6 h)

various stages of mitosis using cytological preparation of Onion root tips. (6 h)

various stages of meiosis using cytological preparation of Onion flower buds. (3 h)

enetic problems related to monohybrid, dihybrid ratio incomplete dominance and

of genes (minimum of six problems in each topic). (12h)

tion of linkage maps; two and three point test cross. (6 h)

ultra structure of cell organelles using photographers. (6h)

Special types of Chromosomes (6h)

Vaagdevi Degree & P.G. College Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Dept. of Botany
Practical Paper - I
Sem - I Year - I

Time - 2 hrs.

I. Identify the given Components A & B in Algal Mixture [A] [B] — [2x2] = 4 Marks

II Classify the given bacterial culture 'C' using gram staining technique — 3 Marks

III Take a T.S of given material 'D' & Identify, & describe the symptoms caused by Pathogen — 4 Marks.

D. — 3 Marks

IV Identify given specimens 3x1 =

E. Fungal —
F. Bacterial —
G. Viral — 4 Marks

V Comment on given slides 2x2

H. Algae
I. Fungi — 4 Marks

VI Identify given specimens & slides 2x2 — 4 Marks

K. specimen (Bryophyta) —
L. Slide (pteridophyta) —

— 3 Marks

VII Record

Vaagdevi Degree & P.G. College, Kishanpura, Hanumakonda.

A. Sudarshan

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Sem - II
Papa - II

Time - 3 hrs
Marks - 25

Botany Practical key [New] Sem - II

I. Prepare a mount of given material 'A' [Hydrophytes/Xerophytes]
Draw diagram & give reasons for Identification [Any one only -] = 4 Marks

[A] ① Hydrophyte — Hydrilla stem T.S ② Xerophytes — Asparagus cladode T.S

II. Prepare a double stained Permanent mount of given material 'B' — (Gymnosperms)

[B] ① Pinus needle T.S ② Gnetum stem T.S. [any one only -] - 5 Marks

III Identify the given specimens C & D [Gymnosperms/Xerophytes]
[C] - Gnetum female cone [D] - opuntia. [~~two~~ only] 2 x 1 = 2 Marks

IV Identify the given slides E & F (Gymnosperm/xerophyte)
[E] Pinus Pollen grain [F] Nymphea Petiole T.S [~~two~~ only] 2 x 2 = 4 Marks

V Technical description of given plant twig ~~B~~ [any one only] — 5 Marks

[G] 1. Polypetalae — ⓐ Cucurbitaceae ⓑ Apiaceae (Umbelliferae)
2. Gamopetalae — ⓐ Asteraceae ⓑ Asclepiadaceae
3. Monochlamydae — ⓐ Euphorbiaceae
4. Monocotyledons — ⓐ Poaceae (Gramineae)

— 3 Marks

VI Herbarium [Min. 30 herbarium sheets] — 3 Marks

VII Record -

12/01/2020

A. Sreedhar

Vaagdevi Degree & P.G. College, Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda

2019-20

B.Sc BOTANY II YEAR SEM III PAPER III PRACTICALS

Vaagdevi Degree & PG College

DEPARTMENT OF BOTANY

Sem-III

Paper-III - Practical Syllabus.

MARKS – 25

TIME – 2 ½ HOURS

TAXONOMY OF ANGIOSPERMS AND MEDICINAL BOTANY

I. TECHNICAL DESCRIPTION OF THE GIVEN PLANT TWIG 'A' 9 MARKS

POLYPETALE	GAMOPETALAE	MONOCHLAMYDAE	MONOCOTELEDONS
1. CAPPARIDACEAE	3. ASTERACEAE	5. EUPHORBIACEAE	6. POACEAE
2. FABACEAE	4. LAMIACEAE		

II. IDENTIFY THE GIVEN MATERIAL 'B' & WRITE ITS MEDICAL PROPERTIES – 3 MARKS

1. PIPPALLU – (PIPER LONGAM)
2. NELA USIRI – (PHYLLANTHUS NIRURI)

III. IDENTIFY THE SPECIMEN 'C' & WRITE ORGANOLEPTIC EVALUATION - 3 MARKS

1. TIPPATEEGA – (TINOSPORA CARDIFOLIA)
2. TURMERIC – (CURCUMA LONGA)

IV. IDENTIFY THE GIVEN MATERIAL 'D' & DISCUSS THE ETHNO MEDICINAL VALUE OF IT – 3 MARKS

1. ASWAGANDA – WITHANIA SOMINIFERA
2. SARPAGANDA – RAUWOLFIA SERPENTAINA
3. AMLA – PHILLANTHUS EMBLICA
4. BRAHMI – BACOPA MONNIERI

V. IDENTIFY THE GIVEN MATERIAL 'E' WRITE ACTIVE PRINCIPLE AND USES – 3 MARKS

1. TULASI – OSCIMUM SANCTUM
2. KARAKAYA – TERMINALIA CHEBULA
3. KALABANDA – ALOE VERA

VI. HERBARIUM (SUBMIT AT LEAST 30 HERBARIUM SHEETS) - 2 MARKS

VII. RECORD 2 MARKS

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda. ★

A. Sudhakar Rao

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

B.SC (CBCS) BOTANY- II YEAR
Semester-IV- Paper IV
Plant Anatomy, Embryology and Palynology

Practical syllabus

(45 hours)

Suggested Laboratory Exercises:

1. Demonstration of double staining technique. (3 h)
2. Tissue organization in root and shoot apices using permanent slides (3 h)
3. Preparation of double stained Permanent slides

Primary structure: Root - *Cicer*, *Canna*; Stem – *Tridax*, *Sorghum* (6 h)

Secondary structure: Root – *Tridax* sp.; Stem –*Pongamia*

Anomalous secondary structure: Examples as given in theory syllabus. (6 h)

4. Stomatal types using epidermal peels. (3 h)
5. Microscopic study of wood in T.S., T.L.S. and R.L.S. (6 h)
6. Structure of anther and microsporogenesis using permanent slides. (3 h)
7. Structure of pollen grains using whole mounts - *Hibiscus*, *Acacia* and Grass). (3 h)
8. Pollen viability test using Evans Bluc – *Hibiscus* (3 h)
9. Study of ovule types and developmental stages of embryosac. (3 h)
10. Structure of endosperm (nuclear and cellular); Developmental stages of dicot and monocot embryos using permanent slides. (3 h)
11. Isolation and mounting of embryo (using *Cymopsis* / *Senna* / *Crotalaria*) (3 h)

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Sem-IV : Paper-IV : Practical Syllabus.

Vaagdevi Degree & PG College

DEPARTMENT OF BOTANY

PRACTICAL PAPER IV MARKS - 25

TIME 2 HOURS SEM IV

. (PLANT ANATOMY, EMBRYOLOGY AND PALYNOLOGY)

I. PREPARE A DOUBLE STAINED PERMANENT MOUNT OF TRANSVERSE SECTION OF GIVEN MATERIAL 'A' – 9 MARKS
   a. BOERHAVIA
   b. DRACAENA

II. PREPARE A TEMPORARY MOUNT OF EPIDERMAL PEEL OF GIVEN LEAF MATERIAL 'B' AND IDENTIFY THE STOMATAL TYPE (ONLY ONE) – 4 MARKS
   a. ANAMOCYTIC
   b. PARACYTIC
   c. ANISOCYTIC
   d. DIACYTIC

III. CONDUCT THE POLLEN VIABILITY TST 'C' OR ISOLATE THE EMBRYO FROM THE GIVEN MATERIAL – 4 MARKS

IV. IDENTIFY AND DESCRIBE THE SPECIMENS / SLIDES WITH WELL LABELLED DIAGRAM (3×2=6 MARKS)
   a. ORTHOTROPHUS OR CAMPYLLOTROPHUS [EMBRYOLOGY]
   b. HIBISCUS POLLEN OR ACACIA POLLENGRAINS [PALYNOLOGY]
   c. ANTHER T.S OR ALEURONE LAYER [ANATOMY]

V. RECORD - 2 MARKS

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda. ★

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY

U.G. Botany (Under CBCS)

B.Sc. Final Year (DSC-1E)

SEMESTER – V

Cell Biology and Genetics Practical

1. Demonstration of cytochemical methods: Fixation of plant material and nuclear staining for mitotic and meiotic studies. (6 h)
2. Study of various stages of mitosis using cytological preparation of Onion root tips. (6 h)
3. Study of various stages of meiosis using cytological preparation of Onion flower buds. (3 h)
5. Solving genetic problems related to monohybrid, dihybrid ratio incomplete dominance and interaction of genes (minimum of six problems in each topic). (12h)
6. Construction of linkage maps; two and three point test cross. (6 h)
7. Study of ultra structure of cell organelles using photographers. (6h)
8. Study of Special types of Chromosomes (6h)

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda. ★

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY

U.G. Botany (Under CBCS)

B.Sc. Final Year (DSE-1E)

SEMESTER – V

Elective

A) Ecology & Biodiversity

Practical Syllabus

1. Study of plant communities by Quadrat Method (9h)
2. Estimation of carbonates and bicarbonates in the given water sample. (6h)
3. Determination of soil texture (composition of clay, sand silt etc.) and pH. (6h)
4. Study of morphological and anatomical characteristics of plant communities using locally available plant species: Hydrophytes (*Eichhornia*, *Hydrilla*, *Pistia*, *Nymphaea*, *Vallisneria*), Xerophytes: (*Asparagus*, *Opuntia*, *Euphorbia spp*), Halophytes (*Rhizophora*, *Avicennia*). (12h)
5. Value of biodiversity

   a) Medicinal value: *Catharanthus*, *Tinospora* and *Emblica* (12h)

   b) Timber Value: *Acacia*, *Tectona* and *Azardirachta*

   c) Aesthetic Value: *Mangifera*, *Ficus*, *Ocimun*

Vaagdevi Degree & P.G. College Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

sem-V ; Elective ; Practical Syllabus
2019-2020.

ECOLOGY & BIODIVERSITY

PRACTICAL SYLLUBUS

SEMESTER – V 25 MARKS

I. STUDY OF PLANT COMUNITIES BY QUADRATE METHOD - 10 MARKS

II. ESTIMATION OF CARBONATES AND BICARBONATES IN THE GIVEN WATER SAMPLE - 4 MARKS

III. DETERMINATION OF SOIL TEXTURE & PH - 4 MARKS

IV. SPOTTERS

STUDY OF MORPHOLOGICAL & ANATOMICAL CHARACTERS OF PLANT SPECIES – 2 MARKS

a. HYDROPHYTES - Eg: HYDRILLA

b. XEROPHYTES - Eg: OPUNTIA

c. HALOPHYTES - Eg: RIZHOPHORA

V. VALUE OF BIODIVERSITY - 2 MARKS

a. MEDICINAL VALUE - Eg TINOSPORA

b. TIMBER VALUE - Eg TECTONA

c. AESTHETIC VALUE -Eg OCIMUM

VI. RECORD - 3 MARKS

TOTAL = 25 MARKS

Vaagdevi Degree & P.G. College Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Dept. of Botany

BCS. Sem-I ; Practical Examination [2019-20]

Paper-I

BOTANY

Time: Max. Marks: 25 M

I. Identify the given components [A] & [B] in the algal mixture. — [2×2=4 M]
(A) Cyanophyceae eg: Nostoc [or] Chlorophyceae eg: Oedogonium
(B). Phaeophyceae eg: Ectocarpus [or] Rhodophyceae eg: Polysiphonia

II. Classify the given bacterial culture [C] using gram staining technique. — [3 M]

III. Take a thin transverse section of given diseased material. [D]. — [4 M]
[D]. Albugo [or] Puccinia (uredo/Teleuto spores)

IV Identify the given specimens [E], [F] & [G]. — [3×1=3]
[E]. Fungal – crustose / Foliose lichens
[F]. Bacteria - Angular leaf spot / Rice tungro
(G). Viral – TMV.

V Comment on given slides [H] & [I] — [2×1=2 M]
(H). Algae – Chara sex organs
(I) Fungi – Penicillium - Asexual

VI Identify the given specimens [J] & slide [K] Bryophyte & pteridophyte (specimen) — [2×2=4 M]
(J). Bryophyta – marchantia with Gemma cup.
(K). pteridophyta - Equisetum spores with elaters.

VII Record & viva (slide) — [5 M]

Vaagdevi Degree & P.G. College, Kishanpura, Hanumakonda.

A. Sreedhar

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Practical Syllabus

(45 hours)

tudy of viruses and bacteria using electron micrographs (photographs).

ram staining of Bacteria.

tudy of symptoms of plant diseases caused by viruses, bacteria, Mycoplasma and fungi:

Virus: Tobacco mosaic

Bacteria: Angular leaf spot of cotton and Rice tungro.

Mycoplasma: Little leaf of Brinjal and Leaf curl of papaya

Fungi: White rust on Crucifers, Rust on wheat & Tikka disease of Groundnut.

Vegetative and reproductive structures of the following taxa:

Algae: Oscillatoria, Nostoc, Volvox, Oedogonium, Chara, Ectocarpus and Polysiphonia.

Fungi: Albugo, Mucor, Saccharomyces, Penicillium, Puccinia and Cercospora

Section cutting of diseased material infected by Fungi and identification of pathogens as per theory syllabus. White rust of Crucifers, Rust on wheat & Tikka disease of Groundnut.

Lichens: Different types of thalli and their external morphology

Examination of important microbial, fungal and algal products:

Biofertilizers, protein capsules, antibiotics, mushrooms, Agar-agar etc.

Field visits to places of algal / microbial / fungal interest (e.g. Mushroom cultivation, water bodies).

Study of Morphology (vegetative and reproductive structures) and anatomy of the following Bryophytes: Marchantia, Anthoceros and Polytrichum.

. Study of Morphology (vegetative and reproductive structures) and anatomy of the following Pteridophytes: Lycopodium, Equisetum and Marsilea.

. Study of Anatomical features of Lycopodium stem, Equisetum stem and Marsilea petiole & rhizome by preparing double stained permanent mounts.

Practical Model Paper

Max. Marks: 50

Time : 3 hrs

1. Identify the given components 'A'&'B' in the algal mixture . Describe with neat labeled diagrams & give reasons for the classifications. — 2 X 4 = 8M
2. Classify the given bacterial culture 'C' using Gram – staining technique. — 6M
3. Take a thin transverse section of given diseased material 'D' Identify & describe the symptoms caused by the pathogen. — 8M
4. Identify the given specimens 'E', 'G' & 'H' by giving reasons . (Fungal-1, Bacteria-1 & Viral-1) — 3 X 2 = 6M
5. Comment on the given slides 'I' & 'J' (Algae-1, Fungi-1) — 2 X 4 = 8M
6. Identify the given specimen 'K' & slide 'L' (Bryophytes & Pteridophytes) — 2 X 4 = 8M
7. Record & Viva — 6M

Vaagdevi Degree College, Kishanpura, Hanumakonda.

Principal

Vaagdevi Degree & P.G. College

Practical Syllabus (45 hours)

1. Study of Morphology (vegetative and reproductive structures) of the following taxa:
   Gymnosperms - Pinus and Gnetum.
2. Study of Anatomical features of Pinus needle and Gnetum stem by preparing double stained permanent mounts.
3. Fossil forms using permanent slides / photographs: Cycadeoidea.
   Systematic study of locally available plants belonging to the families prescribed in theory Syllabus (Minimum of one plant representative for each family)
4. Study of morphological and anatomical characteristics of locally available plant species (Eichhorinia, Hydrilla, Pistia, Nymphaea, Asparagus, Opuntia, Euphorbia melii)
5. Demonstration of herbarium techniques.
6. Candidate has to submit at least 30 herbarium sheets.

Practical Model Paper

Max. Marks: 50

Time : 3 hrs

1. Prepare a mount of the given material ' A ' (Hydrophytes /Xerophytes) 8M
   Draw diagram & give reasons for identification.
2. Prepare a double stained permanent mount of the given material ' B ' (Gymnosperms) 10M
   Draw diagram & give reasons for identification.
3. Identify the given specimens **C & D** (Gymnosperms /Xerophytes) 2 X 4 =8M
4. Identify the given slides **E&F** (Gymnosperms /Xerophytes) 2 X 4 =8M
5. Technical description of the given plant twig ' A ' 10M
6. Herbarium 3M
7. Record 3M

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

Paper -III 2020 - 2021
SEM-III

B.Sc. BOTANY
II Year: Semester-III
Paper – III: Plant Anatomy and Embryology

DSC - 1C Credits- 1

Practical syllabus (45 hours)

1. Demonstration of double staining technique.
2. Tissue organization in root and shoot apices using permanent slides
3. Preparation of double stained Permanent slides
   Primary structure: Root - *Cicer, Canna; Stem – Tridax, Sorghum*
   Secondary structure: Root – *Tridax* sp.; Stem –*Pongamia*
   Anomalous secondary structure: Examples as given in theory syllabus.
4. Anatomy of Xerophyte (*Nerium* leaf); Hydrophyte (*Hydrilla* stem).
5. Stomatal types using epidermal peels.
6. Structure of anther and microsporogenesis using permanent slides.
7. Structure of pollen grains using whole mounts - *Hibiscus, Acacia* and Grass).
8. Pollen viability test using Evans Blue – *Hibiscus*
9. Study of ovule types and developmental stages of embryo sac.
10. Structure of endosperm (nuclear and cellular); Developmental stages of dicot and monocot embryos using permanent slides.

Practical Model Paper

Time: 3 hrs Max. marks: 50

1. Identify the given material"A", Prepare a double stained permanent mount of transverse section ofgiven the given material. 15M
2. Prepare a temporary mount of epidermal peel of the given leaf material " **B** " and identify the stomatal type . 7M
3. Conduct the pollen viability test "**C**" (OR) Isolate the embryo from the given material . 6M
4. Identify and describe the specimens / slides with well labeled diagrams
   (a) Embryology – D (b) Palynology – E (c) Anatomy – F3 X 4 = 12M
5. Record 5M

5M

Vaagdevi Degree & P.G. College, Kishanpura, Hanumakonda.

***

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

SEM-IV
2020-2021

KAKATIYA UNIVERSITY - WARANGAL - TELANGANA

Under Graduate Courses (Under CBCS 2020–2021 onwards)

B.Sc. BOTANY II Year

SEMESTER – IV

CELL BIOLOGY AND PLANT PHYSIOLOGY PRACTICAL

1. Demonstration of cytochemical methods: Fixation of plant material and nuclear staining for mitotic and meiotic studies.
2. Study of various stages of mitosis using cytological preparation of Onion root tips.
3. Study of various stages of meiosis using cytological preparation of onion flower buds.
4. Study of ultra structure of cell organelles using photographs. Chloroplast, Mitochondria, Nucleus, Ribosomes, Endoplasmic reticulum and Golgi complex.
5. Study of Special types of Chromosomes (Polytene chromosome and Lampbrush chromosomes-Permanent slide) ✓
6. Determination of osmotic potential of vacuolar sap by Plasmolytic method using leaves of *Rheodiscolor / Tradescantia.*
7. Determinion of rate of transpiration using Cobalt chloride method
8. Determination of stomatal frequency using leaf epidermal peelings / impressions
9. Determination of catalase activity using potato tubers by titration method
10. Separation of chloroplast pigments using paper chromatography technique
11. Estimation of protein by Biurette method
12. Mineral deficiency- Detail study of Micronutrients and Macro nutrients
13. Identification of C_3,C_4 and CAM plants.

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda.

A. [signature]

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY

U.G. Botany (Under CBCS)

B.Sc. Final Year (DSC-1E)

SEMESTER – V

Cell Biology and Genetics Practical

1. Demonstration of cytochemical methods: Fixation of plant material and nuclear staining for mitotic and meiotic studies. (6 h)
2. Study of various stages of mitosis using cytological preparation of Onion root tips. (6 h)
3. Study of various stages of meiosis using cytological preparation of Onion flower buds. (3 h)
5. Solving genetic problems related to monohybrid, dihybrid ratio incomplete dominance and interaction of genes (minimum of six problems in each topic). (12h)
6. Construction of linkage maps; two and three point test cross. (6 h)
7. Study of ultra structure of cell organelles using photographers. (6h)
8. Study of Special types of Chromosomes (6h)

Vaagdevi Degree & P.G. College ★ Kishanpura, Hanumakonda. ★

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY
U.G. BOTANY (Under CBCS)
B.Sc. Final Year (DSC-1F)
SEMESTER – VI

Plant Physiology
Practical Syllabus

(45 hours)

1. Determination of osmotic potential of vacuolar sap by Plasmolytic method using leaves of *Rheodiscolor / Tradescantia*. (6h)
2. Determination of rate of transpiration using Cobalt chloride method (3h)
3. Determination of stomatal frequency using leaf epidermal peelings / impressions (6h)
4. Determination of catalase activity using potato tubers by titration method (6h)
5. Separation of chloroplast pigments using paper chromatography technique (12h)
6. Estimation of protein by Biurette method (6h)
7. Mineral deficiency- Detail study of Micronutrients and Macro nutrients (3h)
8. Identification of C_3, C_4 and CAM plants (3h)

Vaagdevi Degree & P.G. College, Kishanpura, Hanumakonda.

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

KAKATIYA UNIVERSITY
U.G. BOTANY (Under CBCS)
B.Sc. Final Year (DSE-1F)
SEMESTER – VI

(15)

Elective I

45 hrs.

A) Tissue Culture and Biotechnology
Practical Syllabus

1. Estimation of plant DNA. (Tomato) (6h)
2. Production of synthetic seeds /Encapsulation of embryo (3 h)
3. Preparation of plant tissue culture medium. (6h)
4. Callus Micropropagation (3h)
5. Demonstration of Micropropagation/ multiple shoots (6h)
6. Anther culture (3 h)
7. PCR –Demonstration (3h)
8. Study of biotechnology products: Samples of antibiotics and vaccines (6h)
9. Photographs of transgenic plants – Bt Cotton, Bt –Brinjal. (3h)
10. Instruments used in Biotechnology lab- Autoclave, Laminar air flow, Hot air oven and incubator. (6h)

Vaagdevi Degree & P.G. College Kishanpura, Hanumakonda.

A. Krishnaiah

Principal
Vaagdevi Degree & P.G. College
Kishanpura, Hanumakonda.

M.Sc. Physics I-Semester Practical's

1.5 General Physics –I Laboratory

1. Viscosity of liquid by oscillating disc method.
2. Specific heat of a solid (cylindrical graphite sample).
3. Determination of elastic constants (y,n,k) by Newton's rings (uniform bending).
4. Diffraction grating – Determination of wavelength of laser beam.
5. Hallow prism – Refractive index of liquids.
6. Determination of Stefan's constant.
7. Diffraction of laser light due to single slit – study of intensity of distribution.
8. Lloyd's mirror – Determination of wavelength of monochromatic light.
9. Determination of Rydberg's constant

1.6 Electronics – I Laboratory

1. Verification of Maximum Power Transfer theorem, Thevinin's theorem and Norton's theorem.
2. V-I characteristics of FET-Determination of parameters.
3. V-I characteristics of UJT and UJT as relaxation oscillator.
4. V-I characteristics of SCR-Phase controlled rectification.
5. RC-coupled common source amplifier-study of gain frequency response.
6. Transistor RC Coupled amplifier
7. Collector coupled astable multivibrator.
8. Hartley oscillator-study of variation of frequency with capacitance in the tank circuit.
9. Colpitt's oscillator.
10. Emitter Follower
11. IC Voltage Regulators (78XX and 79XX).

Text and reference books:

1. Advanced practical Physics – **Wornsop & Flint.**
2. Advanced Practical Physics vol.1 – **SP Singh** (Pragatiprakashan).
3. A Text Lab manual in Electronics – **ZBAR** (Tata McGraw Hill).
4. Linear Integrated Circuits – **Shail B.Jain & B.Ray Choudhury** (New Age International Publishers, 2nd edition).
5. Linear Integrated Circuits – **Shalivahanan & VS Bhaaskaran** (Tata McGraw Hill, 2008).

19.10.2015
Chairperson
BOARDS OF STUDIES
DEPARTMENT OF PHYSICS
KAKATIYA UNIVERSITY
WARANGAL-506 009 (T.S.)

M.Sc. Physics II-Semester Practical's

2.5 General Physics – I Laboratory

1. Determination of Cauchy's constants for a) glass b) quartz c) calcite.
2. Biprism – Determination of wave-length of monochromatic light (sodium light).
3. Michelson interferometer - Determination of λ
4. Velocity of ultrasonic waves in organic liquids – using Interferometer.
5. Thermal expansion by Fizeau's method (Coefficient of linear expansion of brass).
6. Diffraction due to single slit – Determination of λ
7. Michelson interferometer – Determination of λ
8. Computer Programming – Least square fitting of s straight line.

2.6 Electronics – I Laboratory

1. Operational Amplifiers – Measurement of
   a) Bias current and offset voltage b) CMRR
2. Operational Amplifiers – Measurement of
   a) Slew rate b) output impedance
3. Op-amplifier – study of gain frequency response
   a) Inverting Op-amplifier – study of gain frequency response
   b) Non-inverting op-amplifier – study of gain frequency response.
4. a) Op-amp as differentiator b) Op-amp as Integrator.
5. Phase shift oscillator using IC741.
6. IC555 timer – Monostable multivibrator.
7. IC555 timer – Schmitt trigger.
8. IC555 timer – a) Astable Multivibrator b) Voltage controlled oscillator.
9. Digital experiments: a) Verification of DeMorgans Theorem. b) Construction and verification of half and full adder circuits and c) Universal Building block

Text and reference books:

6. Advanced practical Physics – **Wornsop & Flint.**
7. Advanced Practical Physics vol.1 – **SP Singh** (Pragatiprakashan).
8. A Text Lab manual in Electronics – **ZBAR** (Tata McGraw Hill).
9. Linear Integrated Circuits – **Shail B.Jain & B.Ray Choudhury** (New Age International Publishers, 2nd edition).
10. Linear Integrated Circuits – **Shalivahanan & VS Bhaaskaran** (Tata McGraw Hill, 2008).

19.10.2015
Chairperson
BOARDS OF STUDIES
DEPARTMENT OF PHYSICS
KAKATIYA UNIVERSITY
WARANGAL-506 009 (TS)

M.Sc. Physics III Semester Practical's

3.5 General Physics-II Laboratory

1. Determination of 'g' factor using ESR spectrometer.
2. Analysis of square wave, clipped sine wave, saw tooth wave using Fourier analysis.
3. To study the characteristics of a given photo conductive cell and the spectral response.
4. To study the characteristics of G M counter and to find out its operating voltage.
5. Verify the inverse square law for γ-rays using G M counter.
6. Determination of energy gap of an intrinsic semiconductor by Four Probe Method.
7. Determination of e/m of an electron using helical method.

3.6A Solid State Physics Special – I Laboratory

1. Determination of co-efficient of thermal conductivity of a single crystal.
2. Determination of the ferromagnetic Curie temperature of monel metal.
3. Determination of paramagnetic susceptibility using Guoy balance.
4. Indexing of Laue pattern.
5. Indexing of a Debye-Scherrer film – Accurate determination of lattice constant using least squares method.
6. Determination of lattice constant using symmetric focusing camera.
7. Determination of lattice constant using X Ray Diffractometer.

3.6B Electronics Special - I Labaratory

Part-I

1. Active filters - Low, High and Band pass filters using IC741.
2. Universal Active filter using IC-FLTU2.
3. D/A converter using R-2R network.
4. A to D converter
5. Positive and Negative clippers using IC741.
6. Analysis of Sample and Hold circuit using IC-LF398.
7. To study OP-AMP dc milli-voltmeter.
8. To study Pulse width Modulator – IC555 timer.
9. To study Pulse Position Modulator – IC555 timer.
10. To study Phase locked loop – FSK Demodulator IC565.

19.10.2015
Chairperson
BOARDS OF STUDIES
DEPARTMENT OF PHYSICS
KAKATIYA UNIVERSITY
WARANGAL-506 009 (T.S.)

M.Sc. Physics IV-Semester Practical's

4.5 General Physics-II Laboratory

1. Determination of susceptibility of a given salt using Quinke's tube method.
2. To study the characteristics of a given solar cell.
3. To verify Beer's law using spectrophotometer.
4. To determine the γ-attenuation coefficients for lead, copper, and aluminum using G M counter.
5. Analysis of hysteresis loop for a given ferromagnetic material and to determine its saturation magnetization, retentivity and co-ercivity.
6. Determination of numerical aperture of an optical fiber.
7. To study the characteristics of a given Laser Diode.
8. Analysis of an audio amplifier using optical fiber.

4.6A Solid State Physics special-II Laboratory

1. Determination of the ferroelectric Curie temperature of $BaTiO_3$ Polycrystalline pellet.
2. Determination of the dispersion curves of monatomic and diatomic lattice analogs using Lattice Dynamic kit.
3. Estimation of colour centre density of X- ray irradiated alkali halide crystal using spectrophotometer.
4. Determination of photoelastic constants using Babinet compensator.
5. Determination of energy band gap of a semi-conductor thin film using spectrophotometer..
6. Determination of refractive index of a single crystal –Brewster angle method using He-Ne Laser.

4.6B Electronics Special-II Laboratory

Part-I: Microcontroller Experiments using 8051

1. Program for multiplication of two Hexa decimal numbers.
2. 2. Program for division of two Hexa decimal numbers.
3. Programs to pick the smallest and largest numbers in a given set of numbers.
4. Programs for arranging given 'n' numbers in ascending and descending order.
5. Program for generation of specific time delay.
6. Program to interface a D A C and generate saw tooth, square and rectangular waveforms.
7. Program to flash an LED connected at a specified output terminal.

19.10.2015
Chairperson
BOARDS OF STUDIES
DEPARTMENT OF PHYSICS
KAKATIYA UNIVERSITY
WARANGAL-506 009 (T.S.)

8. Program to interface a stepper motor, rotate it in clockwise and anticlockwise through given angle steps.
9. Programming using Keil software.
   a) To pick the smallest among a given set of numbers.
   b) To pick the largest among a given set of numbers.
   c) To arrange a given set of numbers in an ascending order and descending order.
   d) To generate a rectangular waveform at a specified port terminal.

Part-II: Digital Communications:

1. Study of sampling techniques.
   a) Natural sampling.
   b) Sample and Hold.
   c) Flat top sampling.
2. Study of various sampling frequencies and Duty cycles.
3. Study of order of the low pass filter.
4. Study of TDM with different receiver and synchronization techniques.
5. Study of Pulse Code Modulation and Demodulation.
6. Study of various carrier modulation and demodulation techniques.
7. Study of Delta Modulation and demodulation.
8. (i) Study of continuously variable slope detector and modulation and demodulation
   (ii). Study of companding system
9. (i) Study of pulse width modulation and demodulation.
   (ii) Study of pulse position modulation and demodulation.
10. Voice communication/Optical Fiber Communication.

4.6C Nanoscience Special –II Laboratory

1. To study the dielectric behavior of PZT ceramic by determining dielectric constant.
2. To prepare nanoparticles using ball mill.
3. DSC/DTA/TGA studies for the thermal analysis of materials.
4. To draw the B-H loop of a ferromagnet.
5. Synthesis of CdS nanoparticles.
6. Synthesis of ZnO particles.
7. Synthesis of Fe2O3 nanoparticles.
8. Optical absorption of Silver nanoparticles
9. Carbon nano tubes.

19.10.2015
Chairperson
BOARDS OF STUDIES
DEPARTMENT OF PHYSICS
KAKATIYA UNIVERSITY
WARANGAL-506 009 (T.S)

Computer Lab Work

1. Program to print Biggest of 3 given numbers.
2. Program to print the roots of a quadratic equation
3. Program to print sum of N given numbers.
4. Program to print N prime numbers.
5. Program to check whether the given number is palindrome or not.
6. Implement functions to find whether a given number is prime or not.
7. Program to find the n^{th} Fibonacci number using recursion.
8. Program to multiply two matrices
9. Program to check whether the given string is palindrome or not.
10. Program to sort a given string.
11. Create a file of student records .
12. Program to swap two numbers using pointers.
13. Program to compute sum of elements stored in an array using pointers.
14. Program to read student records (name, roll, m1, m2, m3) as structure and sort according to name.
15. Program to read student records (name, roll, m1, m2, m3) as structure and print the result.
16. . Programs i)to create a file ii) to read the created file and display it contents..

Computer Lab Work

1. Prepare Curriculum Vitea of a student.
2. Mail Merge.
3. Create graphs(Line, Pie and Bar) in Excel
4. Simple macros in Excel.
5. Program to print Biggest of 3 given numbers.
6. Program to print sum of N given numbers.
7. Program to check whether the given number is palindrome or not.
8. Implement functions to find whether a given number is prime or not.
9. Program to find the n^{th} Fibonacci number using recursion.
10. Program to multiply two matrices
11. Program to check whether the given string is palindrome or not.
12. Program to sort a given string.
13. Create a file of student records .
14. Program to swap two numbers using pointers.
15. Program to read student records (name, roll, m1,m2,m3) as structure and sort according to name.
16. Program to copy contents of one file to another file.

Iyengar, R. K. Jain, 5th Edition, New Age International (p) Limited Publishers

Reference Book:

An Introduction to Numerical Analysis by Kendall E. Atkinson

Numerical Analysis Laboratory

The following programs are to be executed in C/Fortran language.

1. Solution of system of n x n linear equations AX=B using Gauss Elimination method.
2. Finding solution of n x n linear equations AX=B using LU decomposition method.
3. Finding solution of n x n linear equations AX=B using Gauss-Seidel iteration method.
4. Finding the largest Eigen value in magnitude and the corresponding Eigen vector of an n x n matrix A by Power method.
5. Lagrange interpolation.
6. Newton-Gregory forward interpolation.
7. Newton-Gregory backward interpolation.
8. Evaluation of the integral of f(x) between the limits 'a' and 'b' using Trapezoidal rule with 'n' subintervals.
9. Evaluation of the integral of f(x) between the limits 'a' and 'b' using Simpson's 1/3rd rule with '2n' subintervals.
10. Evaluation of the integral of f(x) between the limits 'a' and 'b' using Simpson's 3/8th rule with '3n' subintervals.
11. Solution of equation by Bisection method.
12. Solution of equation by Regula-Falsi method.
13. Solution of equation by Newton-Raphson method.
14. Solution of equation by Mullar method.

Text/Reference Books:

1. Numerical methods for scientific and Engineering Computation by M. K. Jain, S. R. K. Iyengar and R. K. Jain.
2. Numerical methods by E. Balagurusamy.
3. Computer oriented Numerical methods by V. Raja Raman.

PRACTICALS (20 Marks)

i) Lab Work (MATLAB) (10 Marks)

1. Basic Matrix operations
2. Computation of Eigen values & Eigen vectors.
3. Computation of steady state probability distribution using
   a. Power method
   b. Jacobi method
   c. Gauss-Seidel method

Reference Books:

1. Getting Started with MATLAB by Rudra Pratap, Oxford University Press.
2. Introduction to Numerical Solutions of Markov Chains by William J. Stewart, Princeton University Press.

ii. Case Studies (10 Marks)

Applications of finite Markov Chains in Finance and Banking, Health Care, Retail Business, Internet Traffic Modeling and other research and development areas.

Note: For the case studies, students will be divided into batches. Each batch consists of two or three students.

Semester – I
Practical Paper – I

MBP 101: PRINCIPLES OF MICROBIOLOGY & BACTERIOLOGY & VIROLOGY

1. Preparation of different types of media
2. Isolation and enumeration of bacterial and fungal population in air.
3. Enumeration of bacterial population in water.
4. Isolation and enumeration of bacterial and fungal population in soil
5. Demonstration of bacterial motility by Hanging drop technique
6. Staining techniques: i) Gram staining ii) Cell wall staining iii) Endospore staining iv) Flagella staining v) Capsule staining vi) Staining of PHB granules vii) Staining of phosphate granules
7. IMVIC tests (Inole, methylred, Voges prausker and citrate test)
8. Oxidast test
9. Carbohydrate fermentation & Gas production
10. Catalase test
11. Gelatinase test
12. Caseinase test
13. H_2S production test
15. Nitrate reduction test
16. Litmus milk reactions
17. Urease test
18. Estimation of proteins in healthy and viral diseased plants
19. Estimation of DNA in healthy and viral diseased plants
20. Estimation of RNA in healthy and viral diseased plants
21. Transmission of viruses by grafting
22. Transmission of viruses by aphids
23. Sap transmission of plant viruses
24. Isolation of phages from sewage
25. Propagation of animal viruses in embryonated eggs: a) Amniotic cavity b) Chorioallantoic cavity c) Yolk sac
26. One step growth curve experiments.
27. Problems on: i) Phage enumeration ii) Acid end point iii) Hemagglutination assay
28. Micrometry-measure the fungal spore dimensions by using ocular and stage micrometers and calculation of the mean and standard deviation.
29. Demonstration of mycorrhizal association
30. Identification of fungal cultures, algal cultures, and Protozoa
31. Electron photo micrographic study of virus

Semester – I
Practical Paper – II

MBP 102: BIOLOGICAL CHEMISTRY & CELL BIOLOGY AND ENZYMOLOGY

1. Quantitative estimation of glucose by Anthrone method
2. Quantitative estimation of reducing sugars by 3,5, DNS method
3. Quantitative estimation of fructose
4. Quantitative estimation of proteins by Lowry's method
5. Quantitative estimation of Indole Acetic Acid
6. Quantitative estimation of Ascorbic acid
7. Quantitative estimation of Amino acid
8. Qualitative test of carbohydrates: Glucose, Xylose, Starch, Lactose, Maltose, Sucrose
9. Qualitative test of amino acids: Tryptophan, Tyrosine, Methionine, Arginine, Proline,
10. Qualitative test of proteins: Gelatin, Globulin, Albumin, Peptone, Casein
11. Determination of iodine number of fat
12. Qualitative test of lipids: Cholesterol
13. Demonstration of mitotic cell division stages
14. Demonstration of meiotic cell division stages
15. Evolution of kinetic constant of the purified enzyme.
16. Effect of different parameters on enzyme activity such as pH, temperature, time, enzyme concentration
17. Effect of inhibitors on enzyme activity
18. Immobilization of enzyme
19. Enzyme purification
20. Peroxidase isozyme separation by gel electrophoresis
21. Estimation of arginase activity
22. Estimation of catalase activity

Semester – II

Practical Paper – I

MBP 201: MICROBIAL PHYSIOLOGY & MOLECULAR BIOLOGY

1. Bacteria growth curve
2. Growth of the bacteria at different P^H
3. Effect of different temperatures
4. Effect of osmotic pressure
5. Isolation of photosynthetic bacteria from sewage water
6. Estimation & characterization of bacterial chlorophylls
7. Enrichment cultivation of photosynthetic bacteria – Winogradsky column
8. Cultivation of anaerobic bacteria: i) Shake culture technique ii) Pyrogallic acid iii) Candle method iv) Liquid paraffin method v) Gaspak jar method
9. Determination of Thermal death time.
10. .Biochemical tests for identification of bacteria: i) Phenylalanine test ii) Digestion of casein iii) Digestion of meat iv) Starch hydrolysis
11. Carbohydrate catabolism by microorganisms through oxidation and fermentation ofglucose.
12. Enrichment cultures of sulphate reducing bacteria
13. Estimation of ethanol in fermentation broth.
14. Estimation of lactic acid in fermentation broth.
15. Estimation of DNA by DPA method
16. Estimation of RNA by orcinol method
17. Determination of purity of DNA
18. Isolation of RNA from plant sample
19. Isolation of RNA from viral infected plant sample
20. Isolation of DNA from sheep Liver / yeast/ *E.coli*
21. Problems on DNA characteristics
22. Problems related to Transcription, Genetic code, T

Semester – II
Practical Paper – II

MBP 202: ADVANCED IMMUNOLOGY AND BIOPHYSICAL TECHNIQUES & INSTRUMENTATION

1. Typing of human blood groups.
2. Differential staining of WBC by Leishman stain
3. Enumeration of RBC and WBC
4. Estimation of haemoglobin count in blood
5. Widal tests: i) Slide agglutination ii) Tube agglutination methods
6. VDRL test (Venereal disease research laboratory)
7. Hepatitis-B Surface antigen test.
8. HCG test (Agglutination inhibition test)
9. ELISA test.
10. Tridot test
11. Detection of rheumatoid factor
12. Spot test for infections of Mononucleosis
13. RAPITEX CRP Test: i) Qualitative CRP ii)Quantitative CRP
14. Febrile Antigen tube test
15. ASO Test- Anti streptolysin 'O" test
16. Immuno diffusion test: i) Single radial immuno diffusion ii) Double immuno diffusion
17. Isolation of lymphocytes
18. Rocket immuno electrophoresis
19. Tube flocculation test
20. Determination of $P^{k\ value}$ of amino acid
21. Determination of y_{max} of a given solution
22. Separation of Carbohydrates by Paper Chromatography
23. Separation of Amino acids by Paper Chromatography
24. Separation of Lipids by Thin Layer Chromatography
25. Demonstration Column Chromatography
26. Demonstration HPLC and GC
27. Verification of Lambert-Beers Low by UV-VIS Spectrophotometer, scanning
28. Separation of Proteins by Electrophoresis
29. Ultraviolet spectroscopy of Proteins
30. Membrane separation -Dialysis

Semester – III
Practical Paper – I

MBP 301: MICROBIAL GENETICS & GENETIC ENGINEERING & BIOINFORMATICS & COMPUTATIONAL METHODS

1. Isolation of auxotrophic mutants by Replica plate technique.
2. Mutagenesis and UV survival curve.
3. Isolation of petite mutants.
4. Restriction analysis of DNA and agarose gel electrophoresis.
5. Diauxic growth experiment.
6. Preparation of competent cells.
7. Isolation of Plasmid DNA.
8. Transformation- selection of recombinants-Blue and white selection(X-gal method).
9. Amplification of DNA by PCR.
10. Problems related to: (a) Mutation (b) Recombination (Conjugation, transformation, transduction), (c) Gene mapping (d) Restriction mapping (e) Primer design and PCR amplifications (f) DNA libraries.
11. Aligning sequences using Clustal-X
12. Sequence data retrieval in FASTA format from NCBI database.
13. Similarity search in BLAST for protein or nucleotide sequence.
14. Prediction of secondary structure of protein
15. Viewing the Protein Data Box (PDB) files using Rasmol software.
16. Conversion of raw sequences into different sequence format by using Read Seq Tool.
17. Calculation of data using mean, mode, medium, standard deviation and standard error.
18. Problems related to Chi-square test.
19. Problems related to Normal distribution, Binomial distribution and Poisson distribution.
20. ANOVA- one way classified data- two way classified data.
21. Application of F-test.
22. Problems related to Correlation coefficient (Karl Pearson and Rank Correlation Coefficient).
23. Problems related to Regression coefficient.

Kakatiya University, Warangal
B.A/B.Sc. (Statistics) I Year, Semester-I
(CBCS)(With Mathematics Combination)
(Examination at the end of I Year, Sem-I)

Practical-I

Descriptive Statistics and Probability
(2 HPW :: 1 Credit :: 50 Marks)

1. Graphical presentation of data (Histogram, frequency polygon, Ogives) on graph sheets.
2. **Graphical presentation of data (Histogram, frequency polygon, Ogives) using MS-Excel.**
3. Diagrammatic presentation of data (Various types of Bar and Pie diagrams) on graph sheets.
4. **Diagrammatic presentation of data (Bar and Pie) using MS-Excel.**
5. Computation of Measures of central tendency, dispersion, Coefficient of Variation and coefficients of Skewness, Kurtosis using calculator.
6. **Computation of Measures of central tendency, dispersion, Coefficient of Variation and coefficients of Skewness, Kurtosis using MS-Excel.**
7. Computation of non-central and central moments – Sheppard's corrections for grouped data using calculator.
8. **Computation of non-central and central moments – Sheppard's corrections for grouped data using MS-Excel.**
9. Computation of coefficients of Skewness and Kurtosis, Karl Pearson's and Bowley's β_1 and β_2 using calculator.
10. **Computation of coefficients of skewness and kurtosis, Karl Pearson's and Bowley's β_1 and β_2 using MS-Excel.**

***

Chairperson
Board of Studies in Statistics
Kakatiya University
Warangal - 506 009

Kakatiya University, Warangal
B.A/B.Sc. (Statistics) I Year, Semester-II
(CBCS)(With Mathematics Combination)
(Examination at the end of I Year, Sem-II)

Practical-2
Probability Distributions
(2 HPW :: 1 Credit :: 50 Marks)

1. Fitting of Binomial distribution-Direct method. (Using calculator).
2. **Fitting of Binomial distribution-Direct method.(Using MS-Excel).**
3. Fitting of Binomial distribution-Recurrence relation Method. (Using calculator).
4. Fitting of Poisson distribution-Direct method. (Using calculator).
5. **Fitting of Poisson distribution-Direct method.(Using MS-Excel).**
6. Fitting of Poisson distribution-Recurrence relation Method. (Using calculator).
7. Fitting of Negative Binomial distribution. (Using calculator).
8. Fitting of Geometric distribution. (Using calculator).
9. Fitting of Normal distribution-Areas method. (Using calculator).
10. **Fitting of Normal distribution-Areas method. (Using MS-Excel).**
11. Fitting of Normal distribution - Ordinates method. (Using calculator).
12. **Fitting of Normal distribution - Ordinates method. (Using MS-Excel).**
13. Fitting of Exponential distribution. (Using calculator).
14. **Fitting of Exponential distribution.(Using MS-Excel).**
15. Fitting of Cauchy distribution. (Using calculator).
16. **Fitting of Cauchy distribution. (Using MS-Excel).**

***

Chairperson
Board of Studies in Statistics
Kakatiya University
Warangal - 506 009

PRACTICAL PAPER – II

1. Generation of random samples from Uniform (0,1), Uniform (a, b) and exponential distributions,
2. Generation of random samples from Normal and Poisson distributions
3. **Simulation of random samples from Uniform (0, 1), Uniform (a, b), Exponential, Normal and Poisson distributions using MS Excel.**
4. Fitting of straight line and parabola by the method of least squares
5. **Fitting of straight line and parabola by the method of least squares using MS Excel.**
6. Fitting of power curves of the type $y=a\,x^b$, $y=a\,b^x$ and $y=a\,e^{bx}$ by the method of least squares.
7. **Fitting of power curves of the type $y=a\,x^b$, $y=a\,b^x$ and $y=a\,e^{bx}$ by the method of least squares using MS Excel**
8. Computation of Yule's coefficient of association
9. Computation of Pearson's, Tcherprows coefficient of contingency
10. Computation of correlation coefficient and regression lines for ungrouped data %
11. Computation of correlation coefficient, forming regression lines for ungrouped data
12. Computation of correlation coefficient, forming regression lines for grouped data
13. **Computation of correlation coefficient, forming regression lines using MS Excel**
14. Computation of multiple and partial correlation coefficients
15. **Computation of multiple and partial correlation coefficients using MS Excel**
16. Computation of correlation ratio
17. Large sample tests for mean(s), proportion(s), Standard deviation(s) and correlation coefficient.
18. Small sample tests for single mean and difference of means and correlation coefficient
19. Paired t-test
20. **Small sample tests for means(s), paired t-test and correlation coefficient using MS Excel**
21. Small sample test for single and difference of variances
22. **Small sample test for single and difference of variances using MS Excel**
23. χ^2- test for goodness of fit and independence of attributes
24. **χ^2- test for goodness of fit and independence of attributes using MS Excel.**
25. Nonparametric tests for single and related samples (sign test and Wilcoxon signed rank test) and one sample rims test.
26. Nonparametric tests for two independent samples (Median test, Wilcoxon Mann Whitney - U test, Wald - Wolfowitz' s runs test)

Note: Training shall be on establishing formulae in Excel cells and deriving the results. The excel output shall be exported to MS Word for writing inferences.

Kakatiya University, Warangal
B.A/B.Sc. (Statistics) I Year, Semester-I
(CBCS)(With Mathematics Combination)
(Examination at the end of I Year, Sem-I)

Practical-1

Descriptive Statistics and Probability
(2 HPW :: 1 Credit :: 50 Marks)

1. Graphical presentation of data (Histogram, frequency polygon, Ogives) on graph sheets.
2. **Graphical presentation of data (Histogram, frequency polygon, Ogives) using MS-Excel.**
3. Diagrammatic presentation of data (Various types of Bar and Pie diagrams) on graph sheets.
4. **Diagrammatic presentation of data (Bar and Pie) using MS-Excel.**
5. Computation of Measures of central tendency, dispersion, Coefficient of Variation and coefficients of Skewness, Kurtosis using calculator.
6. **Computation of Measures of central tendency, dispersion, Coefficient of Variation and coefficients of Skewness, Kurtosis using MS-Excel.**
7. Computation of non-central and central moments – Sheppard's corrections for grouped data using calculator.
8. **Computation of non-central and central moments – Sheppard's corrections for grouped data using MS-Excel.**
9. Computation of coefficients of Skewness and Kurtosis, Karl Pearson's and Bowley's β_1 and β_2 using calculator.
10. **Computation of coefficients of skewness and kurtosis, Karl Pearson's and Bowley's β_1 and β_2 using MS-Excel.**

***

Prasad

Chairperson
Board of Studies in Statistics
Kakatiya University
Warangal - 506 009

Kakatiya University, Warangal
B.A/B.Sc. (Statistics) I Year, Semester-II
(CBCS)(With Mathematics Combination)
(Examination at the end of I Year, Sem-II)

Practical-2
Probability Distributions
(2 HPW :: 1 Credit :: 50 Marks)

1. Fitting of Binomial distribution-Direct method. (Using calculator).
2. **Fitting of Binomial distribution-Direct method.(Using MS-Excel).**
3. Fitting of Binomial distribution-Recurrence relation Method. (Using calculator).
4. Fitting of Poisson distribution-Direct method. (Using calculator).
5. **Fitting of Poisson distribution-Direct method.(Using MS-Excel).**
6. Fitting of Poisson distribution-Recurrence relation Method. (Using calculator).
7. Fitting of Negative Binomial distribution. (Using calculator).
8. Fitting of Geometric distribution. (Using calculator).
9. Fitting of Normal distribution-Areas method. (Using calculator).
10. **Fitting of Normal distribution-Areas method. (Using MS-Excel).**
11. Fitting of Normal distribution - Ordinates method. (Using calculator).
12. **Fitting of Normal distribution - Ordinates method. (Using MS-Excel).**
13. Fitting of Exponential distribution. (Using calculator).
14. **Fitting of Exponential distribution.(Using MS-Excel).**
15. Fitting of Cauchy distribution. (Using calculator).
16. **Fitting of Cauchy distribution. (Using MS-Excel).**

***

Chairperson
Board of Studies in Statistics
Kakatiya University
Warangal - 506 009

PRACTICAL PAPER – III

Sampling Techniques:

Estimation of population mean, population total and variance of these estimates by

1. Simple random sampling with and without replacement. Comparison between SRSWR and SRSWOR.
2. Stratified random sampling with proportional and optimum allocations. Comparison between proportional and optimum allocations with SRSWOR.
3. Systematic sampling with N=nk. Comparison of systematic sampling with Stratified and SRSWOR.

Design of Experiments:

4. ANOVA - one - way classification with equal number of observations
5. **ANOVA - one-way classification with equal number of observations using MS Excel.**
6. ANOVA Two-way classification with equal number of observations.
7. **ANOVA Two-way classification with equal number of observations using MS Excel**
8. Analysis of CRD. Analysis of RBD with and without missing observation
9. **Analysis of CRD. Analysis of RBD with and without missing observation using MS Excel**
10. Analysis of LSD with and without missing observation
11. **Analysis of LSD with and without missing observation using MS Excel.**
12. Comparison of relative efficiency of CRD with RBD and comparison of relative efficiencies of LSD with RBD and CRD.

Time Series Analysis:

13. Measurement of trend by methods of Least squares and moving averages
14. **Measurement of trend by method s of Least squares and moving averages using MS Excel.**
15. Determination of seasonal indices by methods of Ratio to moving averages, Ratio to trend and Link relatives.
16. **Determination of seasonal indices by methods of Ratio to moving averages, Ratio to trend and Link relatives using MS Excel.**

Index Numbers:

17. Computation of simple and all weighted index numbers.
18. Computation of reversal tests.
19. Construction of cost of living index number and whole sale index number.
20. Construction of fixed base and chain base index numbers.
21. **Base shifting, Splicing** and **Deflation.**

    (a). Computation of all weighted indices, cost of living index number, Base shifting, splicing and deflation using MS Excel.

Kakatiya University, Warangal
B.A/B.Sc. (Statistics) II Year, Semester-IV
(CBCS)(With Mathematics Combination)
(Examination at the end of II Year, Sem-IV)

Practical-4

Statistical Inference
(2 HPW :: 1 Credit :: 50 Marks)

1. Large sample tests for mean(s), proportion(s), Standard deviation(s) and correlation coefficient.
2. Small sample tests for single mean and difference of means and correlation coefficient.
3. Paired t-test.
4. **Small sample tests for mean(s), paired t-test and correlation coefficient using MS Excel.**
5. Small sample test for single and difference of variances.
6. **Small sample test for single and difference of variances using MS Excel.**
7. χ^2 – test for goodness of fit and independence of attributes.
8. **χ^2 – test for goodness of fit and independence of attributes using MS Excel.**
9. Nonparametric tests for single and related samples (sign test and Wilcoxon signed rank test) and one sample run test.
10. Nonparametric tests for two independent samples (Median test, Wilcoxon Mann Whitney - U test, Wald - Wolfowitz run test)

Note: Training shall be on establishing formulae in Excel cells and deriving the results. The Excel output shall be exported to MS Word for writing inferences.

***

Chairperson
Board of Studies in Statistics
Kakatiya University
Warangal - 506 009

Applied Statistics-2 Practical

(2 HPW:: 1 Credit :: 25 Marks)

Analysis of Variance:

1. Analysis of one-way
2. Analysis of two-way
3. Analysis of three-way

Designs of Experiments:

4. Analysis of CRD.
5. Analysis of RBD with and without missing observation. Comparison of RBD with CRD.
6. Analysis of LSD with and without missing observation. Comparison of LSD with RBD and CRD.

Vital Statistics:

7. Computation of Morality rates, Fertility rates and Reproduction rates.
8. Construction of life table and abridged life table.

Demand Analysis:

9. Construction of Lorenz curve.
10. Fitting of Pareto law to an income data.

***

KAKATIYA UNIVERSITY
U.G. Statistics (Under CBCS)
B.Sc. First Year, Semester-I
w.e.f: Academic Year: 2019-20
(With Mathematics Combination)

Practical-1

Descriptive Statistics and Probability

(3 HPW:: 1 Credit :: 50 Marks)

Part - 1 (Using calculator)

1. Graphical presentation of data (Histogram, frequency polygon, Ogives). s
2. Diagrammatic presentation of data (Bar and Pie).
3. Computation of non-central and central moments – Sheppard's corrections for grouped data.
4. Computation of coefficients of Skewness and Kurtosis – Karl Pearson's, Bowley's, β_1 and β_2.

Part - 2 (Using MS-Excel)

1. Basics of Excel- data entry, editing and saving, establishing and copying formulae, built in Functions in excel, copy and paste and exporting to MS word document.
2. Graphical presentation of data (Histogram, frequency polygon, Ogives) using MS-Excel
3. Diagrammatic presentation of data (Bar and Pie) using MS-Excel
4. Computation of Measures of central tendency, dispersion, Coefficient of Variation and coefficients of Skewness, Kurtosis using MS-Excel.

***

KAKATIYA UNIVERSITY
Under Graduate Courses (Under CBCS AY: 2019-2022)
B.Sc. STATISTICS
I Year :: Semester-II

Practical-2

Probability Distributions

(3 HPW :: 1 Credit :: 25 Marks)

Part-1 (Using Calculator)

1. Fitting of Binomial distribution-Direct method.
2. Fitting of Binomial distribution-Recurrence relation Method.
3. Fitting of Poisson distribution-Direct method
4. Fitting of Poisson distribution-Recurrence relation Method.
5. Fitting of Negative Binomial distribution.
6. Fitting of Geometric distribution.
7. Fitting of Normal distribution-Areas method.
8. Fitting of Normal distribution - Ordinates method.

Part-2 (Using MS-Excel)

1. Fitting of Binomial distribution-Direct method.
2. Fitting of Poisson distribution-Direct method.
3. Fitting of Normal distribution-Areas method.
4. Fitting of Exponential distribution.
5. Fitting of Cauchy distribution.

***

Kakatiya University, Warangal
B.A/B.Sc. (Statistics) II Year, Semester-IV
(CBCS)(With Mathematics Combination)
(Examination at the end of II Year, Sem-IV)

Practical-4

Statistical Inference
(2 HPW :: 1 Credit :: 50 Marks)

1. Large sample tests for mean(s), proportion(s), Standard deviation(s) and correlation coefficient.
2. Small sample tests for single mean and difference of means and correlation coefficient.
3. Paired t-test.
4. **Small sample tests for mean(s), paired t-test and correlation coefficient using MS Excel.**
5. Small sample test for single and difference of variances.
6. **Small sample test for single and difference of variances using MS Excel.**
7. χ^2 – test for goodness of fit and independence of attributes.
8. **χ^2 – test for goodness of fit and independence of attributes using MS Excel.**
9. Nonparametric tests for single and related samples (sign test and Wilcoxon signed rank test) and one sample run test.
10. Nonparametric tests for two independent samples (Median test, Wilcoxon Mann Whitney - U test, Wald - Wolfowitz run test)

Note: Training shall be on establishing formulae in Excel cells and deriving the results. The Excel output shall be exported to MS Word for writing inferences.

***

Chairperson
Board of Studies in Statistics
Kakatiya University
Warangal - 506 009

KAKATIYA UNIVERSITY

U.G. Statistics (Under CBCS)
B.Sc. Final Year (DSC-1E)
SEMESTER – V

Applied Statistics-1 Practical

Sampling Techniques:

1. Estimation of Population mean, population total and variance of these estimates By SRS (wr) and SRS(wor).
2. Comparison between SRS(wr) and SRS(wor).
3. Stratified random sampling with proportional and optimum allocations.
4. Comparison between proportional and optimum allocations with SRS(wor).
5. Systematic sampling with N = nk.
6. Comparison of Systematic sampling with Stratified and SRS(wor).

Time Series Analysis:

7. Measurement of trend by method of least squares.
8. Measurement of trend by method of moving averages.
9. Determination of seasonal indices by the method of Ratio to trend.
10. Determination of seasonal indices by the method of Ratio to moving averages.
11. Determination of seasonal indices by the method of link Relatives.

Index Numbers:

12. Computation of all weighted indices.
13. Computation of Cost of living index number.
14. Base shifting, splicing and deflation of Index numbers.

***

KAKATIYA UNIVERSITY

U.G. Statistics (Under CBCS)
B.Sc. Final Year (DSC-1F)
SEMESTER – VI

Applied Statistics-2 Practical

(2 HPW:: 1 Credit :: 25 Marks)

Analysis of Variance:

1. Analysis of one-way
2. Analysis of two-way
3. Analysis of three-way

Designs of Experiments:

4. Analysis of CRD.
5. Analysis of RBD with and without missing observation. Comparison of RBD with CRD.
6. Analysis of LSD with and without missing observation. Comparison of LSD with RBD and CRD.

Vital Statistics:

7. Computation of Morality rates, Fertility rates and Reproduction rates.
8. Construction of life table and abridged life table.

Demand Analysis:

9. Construction of Lorenz curve.
10. Fitting of Pareto law to an income data.

***

KAKATIYA UNIVERSITY
U.G. Statistics (Under CBCS)
B.Sc. Final Year (DSE-1E)
SEMESTER – V

Elective-I

(C): Actuarial Statistics-1 Practical

1. Computation of values of utility function.
2. Computation of various components of life tables.
3. Construction of multiple decrement table for deterministic survival group.
4. Determination of distribution function, survival function and force of mortality.
5. Construction of multiple decrement table for random survivorship group.

***

Elective-II

(B): Bio Statistics-2 Practical

(2 HPW:: 1 Credit :: 25 Marks)

1. Selection and the Hardy -Weinberg test.
2. Genetic drift.
3. Parameter estimation in exponential and Weibull distributions—Type-I, Type-II Censoring.
4. LR tests for exponential and Weibull distribution.
5. Actuarial method of estimation.
6. Kaplan-Meier estimator.

***

KAKATIYA UNIVERSITY
U.G. Statistics (Under CBCS)
B.Sc. First Year, Semester-I
w.e.f: Academic Year: 2019-20
(With Mathematics Combination)

Practical-1

Descriptive Statistics and Probability

(3 HPW:: 1 Credit :: 50 Marks)

Part - 1 (Using calculator)

1. Graphical presentation of data (Histogram, frequency polygon, Ogives). s
2. Diagrammatic presentation of data (Bar and Pie).
3. Computation of non-central and central moments – Sheppard's corrections for grouped data.
4. Computation of coefficients of Skewness and Kurtosis – Karl Pearson's, Bowley's, β_1 and β_2.

Part - 2 (Using MS-Excel)

1. Basics of Excel- data entry, editing and saving, establishing and copying formulae, built in Functions in excel, copy and paste and exporting to MS word document.
2. Graphical presentation of data (Histogram, frequency polygon, Ogives) using MS-Excel
3. Diagrammatic presentation of data (Bar and Pie) using MS-Excel
4. Computation of Measures of central tendency, dispersion, Coefficient of Variation and coefficients of Skewness, Kurtosis using MS-Excel.

***

Practical-5 (A) : Applied Statistics - I

[With 3 HPW, Credits 1 and 25 Marks]

Practical (using R-Software and MS- Excel)

R- Software : Overview of R, R data types and objects, reading and writing data, sub setting R Objects, Essentials of the R Language, Running R, Packages in R, Variable names and assignment, Operators, Integers, Factors, Logical operations. Operations of Scalars, Vectors, Lists, Arrays, Matrices, Data Frames. Control structures, Functions.

1. Data Visualization using R - Frequency polygons and curves, Ogives, Histogram using R.
2. Data Visualization using R - Bar diagrams (simple, compound, percentage and multiple) and Pie diagram (single and multiple) using R.
3. Computation of Descriptive Statistics using R (Measures of Central tendencies and Dispersion, Moments, Skewness and Kurtosis) using R.
4. Computation of expected frequencies for Binomial, Poisson, Normal and Exponential distributions using R.
5. Computation of Karl Pearson's coefficient of correlation and rank correlation using R.
6. Computation of partial and multiple correlations using R.
7. Time series Analysis: Computation of Secular trend by least squares and moving averages methods using R and MS-Excel.
8. Computation of Seasonal variations by Ratio to moving averages, Ratio to trend and Link Relatives methods using R and MS-Excel.
9. Construction of control charts for variables ($\bar{x}$, **R** and σ - charts) using R and MS – Excel.
10. Construction of control charts for attributes (p, np with fixed and varying sample size, C and u charts) using R and MS- Excel.

***

7. **Sears and Zemansky's University Physics** by Hugh D. Young, Roger A. Freedman *Pearson Education Eleventh Edition.*
8. **An introduction to Mechanics** by Daniel Kleppner & Robert Kolenkow. *The McGraw Hill Companies.*
9. **Mechanics.** Hans & Puri. *TMH Publications.*
10. **Engineering Physics.** R.K. Gaur & S.L. Gupta. *Dhanpat Rai Publications.*
11. **The Feymman Lectures in Physics, Vol.-1**, R P Feymman, RB Lighton and M Sands, BI Publications,
12. **Mechanics**-P.K. Srivastava - New Age International.

B.Sc. (Physics Practicals) – I year
Semester - I
Paper – I:: Mechanics Practicals

1. Measurement of errors –simple Pendulum.
2. Calculation of slope and intercept of a Y= mX +C graph by theoretical method (simple pendulum experiment)
3. Study of a compound pendulum- determination of 'g' and 'k'.
4. Y' by uniform Bending
5. Y by Non-uniform Bending.
6. Moment of Inertia of a fly wheel.
7. Rigidity moduli by torsion Pendulum.
8. Determine surface tension of a liquid through capillary rise method.
9. Determination of Surface Tension of a liquid by any other method.
10. Determine of Viscosity of a fluid.

Note: Minimum of eight experiments should be performed. Maximum of 15 students per batch and maximum of three students per experiment should be allotted in the regular practical class of three hours per week.

Suggested Books

1. D.P. Khandelwal, "A laboratory manual for undergraduate classes" (Vani Publishing House, New Delhi).
2. S.P. Singh, "Advanced Practical Physics" (Pragati Prakashan, Meerut).
3. Worsnop and Flint- Advanced Practical physics for students.
4. "Practical Physics" R.K Shukla, Anchal Srivastava.

Dr. B. Venkatram Reddy
Chairman, Board of Studies in Physics, KU, Wgl
Date: 24th Aug., 2016 & 5th June, 2017

7. **Sears and Zemansky's University Physics** by Hugh D. Young, Roger A. Freedman *Pearson Education Eleventh Edition.*
8. **An introduction to Mechanics** by Daniel Kleppner & Robert Kolenkow. *The McGraw Hill Companies.*
9. **Mechanics**. Hans & Puri. *TMH Publications.*
10. **Engineering Physics**. R.K. Gaur & S.L. Gupta. *Dhanpat Rai Publications.*
11. **The Feymman Lectures in Physics, Vol.-1**, R P Feymman, RB Lighton and M Sands, BI Publications,
12. **Mechanics**-P.K. Srivastava - New Age International.

B.Sc. (Physics Practicals) – I year
Semester - II
Paper – II ::Waves and Oscillations Practicals

1. Study of damping of an oscillating disc in Air and Water logarithmic decrement.
2. Study of Oscillations under Bifilar suspension-Verification of axis theorems
3. Study of oscillations of a mass under different combination of springs-Series and parallel.
4. Verification of Laws of a stretched string (Three Laws).
5. Determination of frequency of a bar-Melde's experiment.
6. Observation of Lissajous figures from CRO-Frequency ratio.Amlitude and phase difference of two waves.
7. Volume Resonator –determination of frequency of a tuning fork.
8. Velocity of Transverse wave along a stretched string.
9. Study of damping of a bar pendulum-damping factor
10. Study of coupled oscillator-resonance

Note: Minimum of eight experiments should be performed .Maximum of 15 students per batch and maximum of three students per experiment should be allotted in the regular practical class of three hours per week.

Suggested books

1. D.P. Khandelwal, "A laboratory manual for undergraduate classes" (Vani Publishing House, New Delhi).
2. S.P. Singh, "Advanced Practical Physics" (Pragati Prakashan, Meerut).
3. Worsnop and Flint- Advanced Practical physics for students.
4. "Practical Physics" R.K Shukla, Anchal Srivastav.

Dr. B. Venkatram Reddy
Chairman, Board of Studies in Physics, KU, Wgl
Date: 24th Aug., 2016 & 5th June, 2017

Suggested books

1. **Fundamentals of Physics**. Halliday/Resnick/Walker.*C. Wiley India Edition 2007.*
2. **Second Year Physics** – *Telugu Academy.*
3. **Modern Physics** by R. Murugeshan and Kiruthiga Siva Prasath (for statistical Mechanics) *S. Chand & Co.*
4. **Modern Physics** by G. Aruldhas and P. Rajagopal, *Eastern Economy Education.*
5. Berkeley Physics Course. Volume-5. **Statistical Physics** by F. Reif. *The McGraw-Hill Companies.*
6. **An Introduction to Thermal Physics** by Daniel V. Schroeder.*Pearson Education Low Price Edition.*
7. **Thermodynamics** by R.C. Srivastava, Subit K. Saha & Abhay K. *Jain Eastern Economy Edition.*
8. **Modern Engineering Physics** by A.S. Vasudeva. *S.Chand & Co. Publications.*
9. **Feyman's Lectures on Physics** Vol. 1,2,3 & 4. *Narosa Publications.*
10. **Fundamentals of Optics** by Jenkins A. Francis and White E. Harvey, *McGraw Hill Inc.*
12. B.B. Laud **"Introduction to statistics Mechanics"**(Macmillan 1981)
13. F.Reif:**"Statistical Physics "**(Mcgraw-Hill,1998)
14. K.Haung: **"Statistical Physics "**(Wiley Eastern 1988)

B.Sc. (Physics Practicals) – II year
Semester - III
Paper – III:: Thermal Physics Practicals

1. Co-efficient of thermal conductivity of a bad conductor by Lee's method.
2. Measurement of Stefan's constant.
3. Specific heat of a liquid by applying Newton's law of cooling correction.
4. Heating efficiency of electrical kettle with varying voltages.
5. Calibration of thermo couple
6. Cooling Curve of a metallic body
7. Resistance thermometer
8. Thermal expansion of solids
9. Study of conversion of mechanical energy to heat.
10. Determine the Specific of a solid (graphite rod)

Note: Minimum of eight experiments should be performed. Maximum of 15 students per batch and maximum of three students per experiment should be allotted in the regular practical class of three hours per week.

Suggested Books

1. D.P. Khandelwal, "A laboratory manual for undergraduate classes" (Vani Publishing House, New Delhi).
2. S.P. Singh, "Advanced Practical Physics" (Pragati Prakashan, Meerut).
3. Worsnop and Flint- Advanced Practical physics for students.
4. "Practical Physics" R.K Shukla, Anchal Srivastava

Dr. B. Venkatram Reddy
Chairman, Board of Studies in Physics, KU, Wgl
Date: 24th Aug., 2016 & 5th June, 2017

4. A First Course in Electronics- Anwar A. Khan&Kanchan K. Dey, PHI.

Reference Books

1. Basic Electronics – BernodGrob.
2. Third year Electronics – Telugu Academy
3. Digital Principles & Applications – A.P. Malvino and D.P. Leach
4. Circuit theory- Umesh.

B.Sc. (Physics Practical) – III year
Semester – VI
Paper: VIII(A): Basic Electronics

1. AND, OR, NOT, gates – Truth table Verification
2. . AND, OR, NOT – gates constructions using universal gates – Verification of truth tables.
3. NAND and NOR gates truth table verification
4. Characteristics of a Transistor in CE configuration
5. R.C. coupled amplifier – frequency response.
6. Verification of De Morgan's Theorem.
7. Zener diode V-I characteristics.
8. P-n junction diode V- I characteristics.
9. Zener diode as a voltage regulator
10. Construction of a model D.C. power supply
11. R C phase shift Oscillator –determination of output frequency

❖ Every student should complete minimum 06 experiments.

Text Books for LAB (Practical 6)

1. B.Sc. Practical Physics – C. L. Arora – S. Chand & Co.
2. Viva-voce in Physics – R.C. Gupta, PragathiPrakashan, Meerut.
3. Laboratory manual for Physics Course by B.P. Khandelwal.
4. Practical Physics by M. Arul Thakpathi by Comptex Publishers.
5. B.Sc. practical physics – Subbi Reddy.

Note: Minimum of eight experiments should be performed.

Dr. B. Venkatram Reddy
Chairman, Board of Studies in Physics, KU, Wgl
Date: 24th Aug., 2016 & 5th June, 2017

Question paper pattern

FIRST SEMESTER PRACTICALS

36 hrs
(3 hrs / week)

Practical Paper – I : Mechanics

1. Study of a compound pendulum determination of 'g' and 'k'.
2. Y' by uniform Bending
3. Y by Non-uniform Bending.
4. Moment of Inertia of a fly wheel.
5. Measurement of errors –simple Pendulum.
6. 'Rigidity moduli by torsion Pendulum.
7. Determine surface tension of a liquid through capillary rise method.
8. Determination of Surface Tension of a liquid by different methods.
9. Determine of Viscosity of a fluid.
10. Calculation of slope and intercept of a $Y = mX + C$ by theoretical method

Note: Minimum of eight experiments should be performed. Maximum of 15 students per batch and maximum of three students per experiment should be allotted in the regular practical class of three hours per week.

Text and reference books

1. D.P. Khandelwal, "A laboratory manual for undergraduate classes" (Vani Publishing House, New Delhi).
2. S.P. Singh, "Advanced Practical Physics" (PragatiPrakashan, Meerut).
3. "Practical Physics" R.K Shukla, AnchalSrivastava

Chairperson
BOARD OF STUDIES
DEPARTMENT OF PHYSICS
KAKATIYA UNIVERSITY
WARANGAL (A.P.)

B.Sc. (Electronics Practicals) – I year
Semester - I
Paper – I:: Circuit Analysis Practical Lab

1. Measurement of peak voltage and frequency using CRO.
2. Measurement of phase using CRO.
3. Thevenin's theorem and Norton's theorem – verification.
4. Maximum power transfer theorem – verification.
5. CR circuit – Frequency response - (Low-pass and High-pass).
6. CR and LR circuits – Differentiation and integration – tracing of waveforms.
7. LCR – Series resonance circuit – frequency response – Determination of resonant frequency (f_r), Q-factor and band width.
8. Simulation: i) Verification of KVL and KCL.
   ii) Verification of network theorems.
   iii) Study of frequency response (LR).

Note: Student has to perform minimum of six experiments.

Reference Books:

1) Lab manual for Electronic Devices and Circuits – 4th Edition. By David A Bell – PHI
2) Basic Electronics – A Text Lab Manual – Zbar, Malvino, Miller.

▲▲▲

Dr. B. Venkatram Reddy
Chairman, Board of Studies in Physics, KU, Wgl
Date: 24th Aug., 2016 & 5th June, 2017

B.Sc. (Electronics) Syllabus, Kakatiya University, Warangal
CBCS pattern in Semester System (w. e. from 2016-2017)

B.Sc. (Electronics Practicals) – II year
Semester - IV
Paper - IV:: Linear Integrated Circuits and Basics of Communication Lab

Practicals : Using IC 741 OpAmp and IC 555 Timer ::

1. Op amp as inverting Amplifier- Study of frequency response
2. Op amp as non-inverting Amplifier- Study of frequency response.
3. OP Amp as Summing amplifier and comparator(Zero crossing detector)
4. Astable multivibrator – determination of time period and duty cycle.
5. Monostable multivibrator- determination of gate width.
6. Integrator/ Differentiator – study of wave forms.
7. Astable multivibrator using IC 555
8. Monostable multivibrator using IC 555.
9. AM modulator and detector

Simulation of all the above experiments::

1. Inverting and Non inverting amplifiers and comparator
2. Integrator/ Differentiator using op amp
3. Wein's bridge oscillator
4. Astable multivibrator using Op Amp
5. Astable multivibrator using IC 555

Note: Student has to perform minimum of six experiments

1) Lab manual for Electronic Devices and Circuits – 4th.Edition. By David A Bell – PHI
2) Basic Electronics – A Text Lab Manual –Zbar, Malvino, Miller.

Dr. B. Venkatram Reddy
Chairman, Board of Studies in Physics, KU, Wgl
Date: 24th Aug., 2016 & 5th June, 2017

B.Sc. (Electronics Practicals) – III year
Semester - V
Paper – VI(B):: Electronic Instrumentation Lab

I Analog Experiments:

1.Power control by SCR using UJT.
2. PLLas FM detector (using IC 565).
3.Active high pass filter.
4.Active low pass filter.
5.Calibration of Strain gauge.
6. LVDT.
7. AC Bridges: Maxwell and Wein bridge.

II Analog Simulation Experiments (S/W):

1) Active filters using Op-Amp.
2) Frequency modulation and detection.
3) Amplitude modulation and detection.
4) Solution of differential equation using analog computation (using TUTSIM).

III Digital Experiments (H/W & S/W)

1. Construction of synchronous Up/Down Counter using IC 74192 and display using 7-segment display.
2. Implementation of Boolean functions using multiplexer.
3. Construction of shift registers using IC7495.
4. Construction of an 8-bit full adder using two 4-bit adders.
5. Given a four variable Boolean function design and simulate the circuit using gates.
6. Simulate a 4-bit binary/BCD decade counter.
7. Simulate a full adder circuit using Decoder/ Demodulator.
8. Simulate a 4-bit shift register.
9. Simulate a Johnson counter.

Note: Minimum of 8 experiments to be studied

Dr. B. Venkatram Reddy
Chairman, Board of Studies in Physics, KU, Wgl
Date: 24th Aug., 2016 & 5th June, 2017

B.Sc. (Electronics Practicals) – III year
Semester - V
Paper – VIII(C) :: Optical Fiber Communication Lab

I. Fiber Optic Analog Link (using both 660nm and 850nm)

1. Losses in Optical Fibers.
2. Characteristics of Electrical to Optical Converters.
3. Characteristics of Optical to Electrical converters .
4. Measurement of Numerical Aperture(NA)
5. Intensity Modulation.

II . Fiber Optic Digital Link (Using both 660nm and 850nm)

1. Study of Fiber optic analog Link.
2. Estimation of rise time and fall time distortions.
3. Estimation of propagation delay.
4. Encoding methods for fiber optic digital transmission.

Note: Student has to perform minimum of eight experiments.

Dr. B. Venkatram Reddy
Chairman, Board of Studies in Physics, KU, Wgl
Date: 24th Aug., 2016 & 5th June, 2017

B.Sc. (Electronics) - III Year
Semester – V
Paper – V: (B) Electronic Instrumentation Practical's
(DSE-1: Compulsory)

1. Temperature transducer (Thermocouple/ Thermistor)
2. Pressure Transducer- Strain gauge
3. Displacement Transducer- LVDT (Linear Variable Differential Transformer)
4. Ultrasonic Transducer - Ultrasonic Sensor
5. Flow Transducer- Flow meter
6. Force Transducer- Dynamometer
7. Acceleration Transducer- Accelerometer
8. Photovoltaic cell (Solar cell)
9. Passive Transducers- Photocells (LDR)
10. CRO Characteristics
11. DC Voltmeter/ DC Current Meter
12. AC Voltmeter /AC current Meter
13. Multimeter

B.Sc I Year - Electronics

PRACTICALS PAPER-I (90 hours-30 Sessions)

Circuit Analysis and Electronic devices Lab

1. Measurement of peak voltage, frequency and phase using CRO.
2. Thevenin's theorem – verification.
3. Norton's theorem – verification.
4. Maximum power transfer theorem – verification.
5. CR and LRcircuits- Frequency response- (Low pass and High pass).
6. CR and LR circuits - Differentiation and integration - tracing of waveforms.
7. LCR–Series resonance circuit–Frequency response--Determination of f_o, Q and band width.
8. To draw volt-ampere characteristics of Junction diode and determine the cut-in voltage, forward and reverse resistances.
9. Zener diode V-I Characteristics– Determination of Zener breakdown voltage.
10. Voltage regulator using Zener diode
11. BJT input and output characteristics (CE configuration) and determination of 'h' parameters.
12. FET –Characteristics and determination of FET parameters.
13. UJT as relaxation oscillator.
14. LDR- characteristics.
15. SCR Volt-ampere characteristics.

Note: Student has to perform any 12 experiments.

B.Sc. ZOOLOGY SYLLABUS UNDER CBCS

(With effect from 2016-2017)

III - SEMESTER -DSC-1C

Animal Diversity- Vertebrates and Developmental Biology (Practical)

Max. Marks: 25

Study of museum slides / specimens / models (Classification of animals up to orders)

1. **Protochordata:** *Amphioxus, Amphioxus* T.S. through pharynx
2. **Cyclostomata:** *Petromyzon, Myxine, Ammocoetus larva*
3. **Pisces:** Sphyrna *Pristis, Torpedo, Channa, Pleuronectes, Hippocampus, Exocoetus, Echieneis, Labeo, Catla, Clarius, Auguilla, Protopterus,* Scales: Placoid, Cycloid, Ctenoid
4. **Amphibia:** *Ichthyophis, Amblystoma, Siren, Hyla, Rachophous, Bufo, Rana,* Axolotal larva
5. **Reptilia :** *Draco, Chemaeleon, Gecko, Uromastix, Vipera russeli, Naja, Bungarus, Enhydrina, Typhlops, Testudo, Trionyx, Crocodilus, Ptyas.*
6. **Aves:** Archaeopteryx, *Passer, Psittacula, Bubo, Alcedo, Columba, Corvus, Pavo,* Collection and study of different types of feathers: Quill, Contour, Filoplume, Down
7. **Mammalia:** *Ornithorthynchus, Tachyglossus, Pteropus, Funambulus, Manis, Loris,* Hedgehog;

Histology: T.S. of Liver, Pancreas, Kidney, Stomach, Intestine, Lungs Artery, Vein, Bone T.S., Spinal cord.

Osteology :

1. Rabbit – Axial skeleton system (bones of Skull and Vertebral Column)
2. Varanus, Pigeon and Rabbit – Appendicular skeleton system (bones of limbs and girdles)

Prof. T. RAVINDER REDDY
Chairman
Board of Studies
Department of Zoology
KAKATIYA UNIVERSITY, WGL-506 009 (T.S)

Dissections of *Labeo/Tilapia*:

1. Digestive system.
2. Brain, Weberian ossicles
3. V, VII, IX, X cranial nerves.

Embryology

1. Study of T.S. of Testis and Ovary of a mammal
2. Study of different stages of cleavages (2, 4, 8, 16 cell stages); Morula, Blastula
3. Study of chick embryos of 18 hours, 24 hours, 33 hours and 48 hours of incubation

Laboratory Record work shall be submitted at the time of practical examination

An **"Animal album"** containing photographs, cut outs, with appropriate write up about the above mentioned taxa. Different taxa/ topics may be given to different sets of students for this purpose.

Computer aided virtual dissections.

Suggested manuals:

1. **S.S.Lal,** Practical Zoology – Vertebrata
2. **P.S.Verma,** A manual of Practical Zoology – Chordata
3. **Freeman & Bracegirdle,** An atlas of embryology

Prof. T. RAVINDER REDDY
Chairman
Board of Studies
Department of Zoology
KAKATIYA UNIVERSITY, WGL-506 009 (T.S)

B.Sc. ZOOLOGY SYLLABUS UNDER CBCS

(With effect from 2016-2017)

IV – SEMESTER- DSC-1D

Cell and Molecular Biology, Genetics, Evolution (Practical)

Max. Marks: 25

I. Cytology

1. Preparation and Identification of slides of Mitotic divisions with onion root tips
2. Preparation and Identification of different stages of Meiosis in Grasshopper Testes
3. Identification and study of the following slides
   i). Different stages of Mitosis and Meiosis
   ii) Lamp brush and Polytene chromosomes

II. Genetics

1. Problems on Genetics - Mendelian inheritance, Linkage and crossing over, Sex linked inheritance

III. Evolution

1. Museum Study of Fossil animals: *Peripatus, Coelacanth Fish, Dipnoi fishes, Sphenodon, Archeopteryx*.
2. Study of homology and analogy from suitable specimens and pictures
3. Problems on Hardy-Weinberg Law
4. Macroevolution using Darwin finches (pictures)

Laboratory Record work shall be submitted at the time of practical examination

An **"Album"** containing photographs, cut outs, with appropriate write-up about Genetics and Evolution.

Computer aided techniques should be adopted as per UGC guide lines.

Suggested manuals:

Manual of laboratory experiments in cell biology Edward, G.

Prof. T. RAVINDER REDDY
Chairman
Board of Studies
Department of Zoology
KAKATIYA UNIVERSITY, WGL-506 009 (T.S)

B.Sc. ZOOLOGY SYLLABUS UNDER CBCS

(With effect from 2016-2017)

V- SEMESTER- DSC-1E

Food and Nutrition (Practical)

Max.Marks:25

1. Identification of Mono, Di and Polysaccharides'
2. Identification of Proteins (albumin' gelatin, peptone)'
3. Determination of Acid value, saponification value of fats and oils.
4. Estimation of Lactose in Milk
5. Estimation of serum Protein (Biuret method and Lowry method)
6. Estimation of blood Glucose (Folin Wu method)'
7. Estimation of Ascorbic acid.
8. Estimation of blood creatinine.
9. Visit to canning industry and dairy firm etc.
10. Planning and preparation of low fat and low caloric diets.

Prof. T. RAVINDER REDDY
Chairman
Board of Studies
Department of Zoology
KAKATIYA UNIVERSITY, WGL-506 009 (T.S)

B.Sc. ZOOLOGY SYLLABUS UNDER CBCS

(With effect from 2016-2017)

VI- SEMESTER -DSC-1F

Immunology and Animal Biotechnology (Practical)

Max. Marks: 25

I. Immunology

1 .Identification of Blood groups
2. Histological study of spleen, thymus and lymph nodes (through prepared slides)
3. Enumeration of RBC & WBC from a given blood sample
4. Enumeration of Differential count of WBC from a given blood sample
5. Demonstration of
   a. ELISA b. Immunoelectrophoresis
6. Identification of Autoimmune disease through charts.

II. Animal Biotechnology

1. Study the following techniques through photographs / virtual lab
   a. Southern blotting
   b. Western blotting
   c. DNA sequencing (Sanger's method)
   d. DNA finger printing
   e. Identification of Vectors
   f. Identification of Transgenic animals
2. PCR demonstration /virtual lab

- **Laboratory Record work shall be submitted at the time of practical examination**
- **Computer aided techniques should be adopted as per UGC guide lines.**

Suggested manuals:

Kindt, T. J., Goldsby, R.A., Osborne, B. A. and Kuby, J (2006). Immunology, VI Edition. W.H. Freeman and Company.

David, M., Jonathan, B., David, R. B. and Ivan R. (2006). Immunology, VII Edition, Mosby, Elsevier Publication.

Abbas, K. Abul and Lechtman H. Andrew (2003.) Cellular and Molecular Immunology. V Edition. Saunders Publication.

Prof. T. RAVINDER REDDY
Chairman
Board of Studies
Department of Zoology
KAKATIYA UNIVERSITY, WGL-506 009 (T.S)