Y7

P.R.GovernmentCollege(Autonomous)
Kakinada

(Affiliated to AdikaviNannaya University)

Department of Chemistry

B.Voc(PharmaceuticalChemistry)

Under NSQF Scheme

Board of studies

2021-22

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Note: BOS is to provide final soft copy in PDF and word formats and four copiesofhardcopiesinboundedformtotheofficeofDeanAcademicaffairs.

P.R.GovernmentCollege(Autonomous),KakinadaRecommendedCompositionoftheBoardofStudiesofB.Voc (PharmaceuticalChemistry) AnditsFunctionsofanAutonomousCollege2021-22

Composition

1.Chairman,BoardofStudies:

Sri T.V.V.SatyaNarayanaM.Sc.,

NodalOfficerforB.Voc.(PharmaceuticalChemistry)

2.Theentirefacultyofeachspecialization.

1. ***Dr.D.Rama Rao***
2. ***Dr. D. Chenna Rao***
3. ***V. Sanjeev Kumar***
4. ***P. Vijay Kumar***
5. ***V.RamaBabu***
6. ***N.BujjiBabu***
7. ***T.UmaMaheswara Rao***
8. ***Dr.A.ChandraLeela***
9. ***Dr.Ch.Praveen***

3.Subjectexpertsfromoutsidethecollegetobenominatedbytheacademic Council

SriV.MallikharjunaSharma, LecturerinChemistry,ASD women Govt.College(A),Kakinada

Dr.k. Jhansi,LecturerinChemistry.

4.Oneexperttobenominatedbythe Vice-Chancellorfromapanelofsix Recommendedbythe**CollegePrincipal,**
Prof.K.Deepthi,AdikaviNannayaUniversity,Rajamundry.

5.Expertfromindustry

1 Ch.S.N.Murthy,Director,Venky pharma pvt.Ltd,Yanam.

6.One postgraduatemeritoriousalumnusnominatedbythePrincipal.
V.MallikarjunaSarma, M.Sc., OrganicChemistry

Signatures of the members who attended the Board of studies in B. Voc (Pharmaceutical Chemistry)

Date:10.12.2021 Time: 3.00 Pm

Mode of conduct of meeting: offline mode in P.R. Govt. College(A), Kakinada.

S.no	Name of the member	Designation	Signature
1	Sri. T. V. V. Satyanarayana	Chairman, Board of Studies, Nodal Officer for B. Voc (Pharmaceutical Chemistry)	T. V. V. Satya 10/12/2021
2	Prof. K. Deepthi	University Nominee Asst. Professor & Head of the Department of Chemistry, AKNU, Rajamundry.	K Deepthi
3	Sri. K,anand	Subject Expert	10/11/21
4	DR.RAMESH BOGA	Founder &MD Boga R Laboratories,Peddapuram &Suvane,USA	
5	V. Mallikarjuna Sarma	Lecturer in Chemistry A.S.D Govt College Kakinada	10/12/2021
7	Dr. D. Chenna Rao	Member Lecturer in chemistry Department of Chemistry	10/12/2021
8	V. Sanjeev Kumar	Member Lecturer in chemistry	V. Sanjeev
9	P. Vijay Kumar	Member Lecturer in Chemistry	Vijay
10	V. Rama Babu	Member Lecturer in Chemistry	
11	Student members: Hephsibah. K Mohan. Ph	Admn No:5215422 Admn No:5215420	Hephsibah.

ACTIONPLANBOSMEETING-CHEMISTRYHELDON06-04-2021.

Departmentactivitiesfortheacademicyear2020-2021.

Annexurel

1. **OrganizingNational/Statelevelseminars/Workshops/Conferences/Trainin gprogrammesetc.,withtopicsandotherdetails.**
   (MandatoryforeachDepartment)

i) Staffdevelopmentprogramme
ii) TrainingintheuseofHPLC
iii) AwarenessonOZONEprotection
iv) NationalChemistryday
v) Chem.fest
vi) NationalScienceday2020
vii) Guestlectures
viii) Traininginwateranalysis

2. **Changeofmodulesinthesyllabuscontent.**
   Syllabusdesignedforfirstandsecondandfinalyearsasperuniversityregulations.CBC Sintroducedforfinalyearw.e.f.2018-19& CBCS introduced for I &II year wef 2020-21.

3. **PlanforutilizationoffundsforAutonomous/UGC/othergrantsavailableforarr angingguestlectures,facultyimprovementprogrammes,studytours,equipp inglaboratories,referencebooks&othernecessaryteaching-learningmaterialwithICTenabledteaching.**

I. Studyvisitsto: Rs,50,000

1. HeteroLaboratories,Nakkapally
2. Dr.Reddy'sLaboratories,Yanam.
3. NationalInstituteofHydrology,Kakinada.
4 NagarjunaFertilizersandChemicalsLtd,Kakinada.
5 CoromandelInternationalLtd.,Kakinada
6 VenkyParenterals,Yanam

II.

1. SophisticatedversionUV-Visiblespectrophotometer- 5.0lakhs
2. Otherequipment 1.50lakhs
3. Consumables 1.98lakhs

4. **Planfororganizingsubjectorientedcommunityoutreachprogrammes&allocationofnecessaryfunds.(MandatoryforeachDepartment)**
   i) Adoptionofvillage Rs. 20,000
   ii) MedicalAwarenessprogrammes Rs. 10,000

5. **Institution of new medals/incentives/prizes etc., from alumni,philanthropists,parents,facultyetc.,-Strategiestoberecommended**

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6. **Introduction of new Online programmes –PG/UG/Diploma andcertificatecourses.**

Swayam online course

Industrial Pharmacy

7. **Anyotherprogrammethatenhancesthelearningcapacityofstudentsandtheiremployable&knowledgeskills.**
   TrainingintheuseofinstrumentslikeAAS,UV-Vis,HPLC,flamephotometer,uranium analyzer, soil and water analysis projects, air qualityprojects.

8. **ChangeininternalassessmentexamsforconductingImidSemesterbywayof Project work/Assignment.**
   ItisproposedtoconductanonlineExaminationforIMidSemesterExaminationfrom 2020-21.
9. **Suggestpanelofexaminers/papersetters&otherexperts/nomineesforBOSdeliberations.**
   Chemistry:

1. Dr.D. S. V. N. N. Rama Murthy,GDC(A),Tuni
2. Sri V. Sridhar, Arts College, Rajahmundry
3. Dr. B. Malliakarjuna, Arts College, Rajahmundry

DepartmentofB.Voc(PharmaceuticalChemistry)Boa

rdOfStudiesMeeting

Dt.10-12-2021

Resolutions:

ThemeetingofBoardofstudiesinB.Voc(PharmaceuticalChemistry)isconvened on **10-12-2021**atdept of chemistry in P.R.Govt. College (A).The PrincipalDr.B.V.Tirupanyam ,Dr. K. Deepthi, UniversityNominee,SriK.Anand,GDCPithapuram..,SubjectExpert,SriV.Mallikarjuna Sarma, GDC(W),Kakinada,allmembersofthefacultyof Chemistry and student representatives attended the meeting. Agenda items arediscussedandresolutionsaremade.

1. It is resolved to follow the revised Choice Based Credit System for B. Voccourses scrupulously as per the directions of Andhra Pradesh State Council ofHigherEducation(APSCHE),Vijayawadaandalsoasperthedirectionsof AdikaviNannayaUniversity,Rajamahendravaramwitheffectfromtheacademicyear2020-21.
2. It is resolved to follow the revised curricularframework for B. Voccoursesscrupulously as per the directions of Andhra Pradesh State Council of HigherEducation (APSCHE), Vijayawada and also as per the directionsofAdikaviNannaya University, Rajamahendravaram with effect from the academic year2020-21.
3. It is resolved to choose Life Skill courses and Skill Development Courses inconcurrencewiththevocationalcourse.
4. It is resolved to conduct industrial visits for B. Voc students to make themacquaintedwiththeindustrialenvironment.
5. ItisresolvedtoadmitbothIntermediate(MPC)streamandIntermediate(Bi.P.C)stream studentsintoB.Voccoursesanddesignthecurriculumaccordingly.
6. ItisresolvedtorunB.Voc(PharmaceuticalChemistry)intwostreamsnamely
   i. B.Voc(PharmaceuticalChemistry)Mathsstreamand

ii. B.Voc(PharmaceuticalChemistry)Biologystream

7. It is resolved to organize Guest lectures by eminent professors and IndustrialExperts.
8. Resolvedtoimplementpassminimumforinternalassessmentfor CBSEpatternstudentsasthepatternislearneroriented.
9. Resolved to submitproposalstoconductafacultydevelopmentprogrammeininstrumentationtechniques/advancedtopicswiththeassistanceofindustryrepresentativesanduniversityrepresentatives.
10. ResolvedtoconductIndustrialInternshipforaperiodoftwomonthsduringthesummerafterc ompletionofsemesterendexaminations.
11. It is resolved to make it mandatory for the students in the entire V semester toundergoindustrialinternshipforaperiodof6monthsinaPharmaIndustry.
12. ItisresolvedtogetthestudentsofB.Voc(PharmaceuticalChemistry)registeredinNAPS(NationalApprenticeshipPromotionScheme).
13. ItisresolvedthattheB.Voc(PharmaceuticalChemistry)courseisrestructuredinB.Sc(Professional)(PharmaceuticalChemistry).TheproposalisputforwardtoAcademicCounciland GeneralBodyMeeting.
14. ItisresolvedtofollowstrictlytheguidelinesofUGCunderNSQFschemefortherecruitmentandengagementoffacultyandnon-teachingstaff.
15. Itisresolvedtofollowthe same syllabifor English,SecondLanguage,LifeSkillCoursesandSkillDevelopmentCoursesasthosepres cribedforUGCoursesbyAPSCHE,Vijayawada.
16. It is resolved to follow the same syllabi for main subjects namely Mathematics,BotanyandChemistryasthoseprescribedforUGCoursesbyAPSCHE,Vijay awada.
17. It is resolved to implement 50% external & 50% internal marks for both theory &practicals from the academic year 2020-2021 for first year students only.
18. It is resolved to implement 60% external & 40% internal marks for both theory &practicals from the academic year 2020-2021 for second & third year students
19. Resolved to reduce 40 marks of Theory internal to 20 marks for mid exams and 20 marks for co-curricular activities (Seminar / Assignment / Quiz / Group Discussion) and reduce 50 marks of theory internal to 25 marks for mid exams and 25 marks for co-curricular activities (Seminar / Assignment / Quiz / Group Discussion.
20 .Resolve to conduct practical examinations semester wise.

The following paper setters are recommended

i)Dr.D. S. V. N. N. Rama Murthy,GDC(A),Tuni

ii)K. Anand ,GDCPithapuram..,

iii) Sri V.MallikarjunaSarma, GDC(W),Kakinada

AboutB.Voc(PharmaceuticalChemistry)

The University Grants Commission (UGC) had launched a scheme on 27 February,2014forskillsdevelopmentbasedhighereducationaspartofcollege/universityeducation, leadingtoBachelorofVocation (B.Voc.)degreewithmultipleentryandexit points. Considering the implementation modalities, the guidelines of the schemehavebeenrevisedintheyear2015.TheB.Voc.ProgrammeisfocusedonuniversitiesandcollegesprovidingundergraduatestudieswhichwouldalsoincorporatespecificjobrolesanddtheirNOSsalongwithbroadbasedgeneraleducation. This would enable the graduates completing B. Voc to make a meaningfulparticipationinacceleratingIndia'seconomybygainingappropriateemployment, becomingentrepreneursandcreatingappropriateknowledge.

Objectives

1. Toprovidejudiciousmixofskillsrelatingtoaprofessionandappropriatecontentofgeneraleducation.
2. To ensure that the students have adequate knowledge and skills, so that theyareworkreadyateachexitpointoftheprogramme.
3. To provide flexibilitytostudentsbymeansofpre-definedentryandmultipleexitpoints.
4. TointegrateNSQFwithintheundergraduatelevelofhighereducationinorderto enhanceemployabilityofthegraduatesand meet industryrequirements.Suchgraduatesapartfrommeeting the needsoflocaland national industryarealsoexpectedtobeequippedtobecomepartoftheglobalworkforce.
5. To provide vertical mobility to students coming out of (a) 10+2 with vocationalsubjects;and(b)CommunityColleges.

CourseObjectives:

Tomakestudent

1. UnderstandthebasicconceptsofOrganicChemistry
2. Understanddifferenttypesoforganicreactions
3. Acquireknowledgeonqualitativeandquantitativechemicalanalysis
4. Developskillsintheusageandapplicationoflaboratoryinstruments
5. Understandthemechanismsofvariousorganicreactions
6. AcquireknowledgeonvarioustypesofPharmacopoeia.
7. Understandvariousformsofmedicinesandtheroleofadditivesinformulations
8. Acquire knowledge ondifferenttypesofinstrumentation techniques inchemicalanalysis.
9. Understandstereochemistryofcarboncompoundsitsimportanceinorganicchemistry
10. Acquireknowledgeonthebasicconceptsofcomputers
11. DevelopskillsinMSword,MSExcelandMSPowerPointapplications.
12. Developcommunicationandsoftskills.

13. Undergoindustrialtrainingandacquireskillsinvariousinstrumentationtechniques.
14. Visitpharmaceuticalindustriesandunderstandthefunctioningofplant,

CourseOutcomes:

Attheendofthecourse,thestudentwillbeableto

1. Acquirecompetenceandskillsinvarioustechniquesinchemicalanalysis.
2. ReadytogetasuitablepositionorjobrolesuchasQualityControlChemist,QualityAssuranceChemist,ProductionChemistinaPharmaceuticalIndustry.
3. Chooseforanacademicprogressionunderverticalmobilityforhigherstudies.
4. Eligibleforvariouscompetitiveexaminationsinvariouspostsrecruitedbystateandcentralgovernments.

Sem-I

Category	Subject/Paper	Course	Theory /Practical	No.of Hrs./ Week	No ofcredits	Evaluation		
						Internal	External	TOTAL
Firstlanguage	ENGLISHPRAXISCOURSE-I		Theory	4	3	50	50	100
SecondLanguage	Telugu/Sanskrit/Hindi		Theory	4	3	50	50	100
LifeSkillCourses	ComputerApplications		Theory	2	2		50	50
SkillDevelopment Course	ElectricalAppliances		Theory	2	2		50	50
MajorSubject-1	Mathematics / B	C1	Theory	6	5	50	50	100
MajorSubject-2	Chemistry	C1	Theory	4	4	50	50	100
	Chemistry		Practical	2	1		50	50
Vocational	BasicPharmaceutics-I	C1	Theory	4	4	50	50	100
	BasicPharmaceutics-I		Practical	2	1		50	50
	BasicPharmaceutics-II	C2	Theory	2	2	-	50	50
	BasicPharmaceutics-II		Practical	2	1		50	50
			TOTAL	34	28	250	550	800

P.R.GOVERNMENTCOLLEGE(A),KAKINADADEPART MENTOFCHEMISTRY
B.VOC(PHARMACEUTICALCHEMISTRY)(MATHSSTREAM)CU RRICULARFRAMEWORK(CREDITSTABLE)
SEMESTER–II

Category	Subject/Paper	Course	Theory /Practical	No.of Hrs./ Week	No ofcredits	Evaluation		
						Internal	External	TOTAL
Firstlanguage	ENGLISHPRAXISCOURSE-II		Theory	4	3	50	50	100
SecondLanguage	Telugu/Sanskrit/Hindi		Theory	4	3	50	50	100
LifeSkillCourses	InformationandCommunicationTechnology		Theory	2	2	-	50	50
SkillDevelopment Course-1	FoodAdulteration		Theory	2	2	-	50	50
SkillDevelopment Course-1	Dairy technology		Theory	2	2	-	50	50
MajorSubject-1	Mathematics	C2	Theory	6	5	50	50	100
MajorSubject-2	Chemistry	C2	Theory	4	4	50	50	100
	Chemistry		Practical	2	1		50	50
Vocational	BasicAnalyticalChemistry-I	C3	Theory	4	4	50	50	100
	BasicAnalyticalChemistry-I		Practical	2	1		50	50
	HealthEducationandCommunityPharmacy	C4	Theory	2	2	-	50	50
	HealthEducationandCommunityPharmacy		Project	2	1	-	50	50
			TOTAL	36	30	250	600	850

P.R.GOVERNMENT COLLEGE(A),
KAKINADADEPARTMENTOFCHEMISTRY
B.VOC(PHARMACEUTICALCHEMISTRY)(MATHSSTREAM)CU
RRICULARFRAMEWORK(CREDITSTABLE)
Semester–III

	Category	Subject/Paper	Course	Theory /Practical	No. ofHrs./ Week	No ofcredits	Evaluation		
							Internal	External	TOTAL
	Firstlanguage	ENGLISHPRAXISCOURSE-III		Theory	4	3	40	60	100
	SecondLanguage	Telugu/Sanskrit/Hindi		Theory	4	3	40	60	100
	LifeSkillCourse-I	EnvironmentEducation		Theory	2	2	-	50	50
	LifeSkillCourse-II	PersonalityDevelopmentand Leadership		Theory	2	2	-	50	50
	SkillDevelopment Course	EnvironmentAudit		Theory	2	2	-	50	50
	MajorSubject-1	Mathematics	C3	Theory	6	5	40	60	100
	MajorSubject-2	Chemistry	C3	Theory	4	4	40	60	100
		Chemistry		Practical	2	1		50	50
	Vocational	AdvancedPharmaceutics-I	C5	Theory	4	4	40	60	100
		AdvancedPharmaceutics-I		Practical	2	1		50	50
		AdvancedPharmaceutics-II	C6	Theory	2	2	-	50	50
		AdvancedPharmaceutics-II		Project	2	1	-	50	50
				TOTAL	36	30	200	650	850

P.R.GOVERNMENT COLLEGE(A),
KAKINADADEPARTMENTOFCHEMISTRY
B.VOC(PHARMACEUTICALCHEMISTRY)(MATHSSTREAM)CURRICU
LARFRAMEWORK(CREDITSTABLE)
Semester–IV

Category	Subject/Paper	Course	Theory /Practical	No.of Hrs./ Week	No ofcredits	Evaluation		
						Internal	External	TOTAL
MajorSubject-1	Mathematics	C4	Theory	6	5	40	60	100
	Mathematics	C5	Theory	6	5	40	60	100
MajorSubject-2	Chemistry	C4	Theory	4	4	40	60	100
	Chemistry		Practical	2	1		50	50
	Chemistry	C5	Theory	4	4	40	60	100
	Chemistry		Practical	2	1		50	50
Vocational	BasicAnalyticalChemistry-II	C7	Theory	4	4	40	60	100
	BasicAnalyticalChemistry-II		Practical	2	1		50	50
	IndustrialSafetyandManagement	C8	Theory	4	4	40	60	100
	IndustrialSafetyand Management		Practical	2	1		50	50
			TOTAL	36	30	300	500	800

P.R.GOVERNMENT COLLEGE(A),
KAKINADADEPARTMENTOFCHEMISTRY
B.VOC(PHARMACEUTICALCHEMISTRY)(MATHSSTREAM)CURRICU
LARFRAMEWORK(CREDITSTABLE)

Semester-V

Subject/Paper	Theory /Practical	No ofcredits	Evaluation
FirstPhaseofApprenticeshipbetween 1stand 2ndyear(SummerVacation)		04	100
SecondPhaseofApprenticeshipbetween 2ndand 3rdyear(SummerVacation)		04	100
INDUSTRIALINTERNSHIP		12	300
TOTAL		30	400

P.R.GOVERNMENT COLLEGE(A),
KAKINADADEPARTMENTOFCHEMISTRY
B.VOC(PHARMACEUTICALCHEMISTRY)(MATHSSTREAM)CURRICU LARFRAMEWORK(CREDITSTABLE)
Semester–VI

Category	Subject/Paper	Course	Theory /Practical	No.of Hrs./ Week	No ofcredits	Evaluation		
						Internal	External	TOTAL
Vocational	PharmaRegulatoryAffairs	C9	Theory	4	4	40	60	100
	PharmaRegulatoryAffairs		Practical	2	1		50	50
	PharmaceuticalInorganicChemistry	C10	Theory	4	4	40	60	100
	PharmaceuticalInorganicChemistry		Practical	2	1		50	50
	AdvancedAnalyticalChemistry	C11	Theory	4	4	40	60	100
	AdvancedAnalyticalChemistry		Practical	2	1		50	50
	BasicQualityControlandQualityAssurance	C12	Theory	4	4	40	60	100
	BasicQualityControlandQualityAssurance		Practical	2	1		50	50
	DocumentationforQualityControl	C13	Theory	4	4	40	60	100
	DocumentationforQualityControl		Practical	2	1		50	50
	PharmaceuticalandMedicinalChemistry	C14	Theory	4	4	40	60	100
	PharmaceuticalandMedicinalChemistry		Practical	2	1		50	50
			TOTAL	36	30	240	660	900

P.R.GOVERNMENTCOLLEGE(A),KAKINADADEPARTM ENTOFCHEMISTRY
B.VOC(PHARMACEUTICALCHEMISTRY)(BIOLOGYSTREAM)CU RRICULARFRAMEWORK(CREDITSTABLE)
SEMESTER-I

Category	Subject/Paper	Course	Theory /Practical	No. ofHrs./ Week	No ofcredits	Evaluation		
						Internal	External	TOTAL
Firstlanguage	ENGLISHPRAXISCOURSE-I		Theory	4	3	50	50	100
SecondLanguage	Telugu/Sanskrit/Hindi		Theory	4	3	50	50	100
LifeSkillCourse	ComputerApplications		Theory	2	2	-	50	50
SkillDevelopment Course	Plantnursery		Theory	2	2	-	50	50
MajorSubject-1	Botany	C1	Theory	4	4	50	50	100
	Botany		Practical	2	1		50	50
MajorSubject-2	Chemistry	C1	Theory	4	4	50	50	100
	Chemistry		Practical	2	1		50	50
Vocational	BasicPharmaceutics-I	C1	Theory	4	4	50	50	100
	BasicPharmaceutics-I		Practical	2	1		50	50
	BasicPharmaceutics-II	C2	Theory	2	2	-	50	50
	BasicPharmaceutics-II		Practical	2	1		50	50
			TOTAL	34	28	250	600	850

Category	Subject/Paper	Course	Theory /Practical	No. ofHrs./ Week	No ofcredits	Evaluation		
						Internal	External	TOTAL
Firstlanguage	ENGLISHPRAXISCOURSE-II		Theory	4	3	50	50	100
SecondLanguage	Telugu/Sanskrit/Hindi		Theory	4	3	50	50	100
LifeSkillCourses	InformationandCommunicationTechnology		Theory	2	2	-	50	50
SkillDevelopment Course-1	FoodAdulteration		Theory	2	2	-	50	50
SkillDevelopment Course-2	Fruitsandvegetablespreservation		Theory	2	2	-	50	50
MajorSubject-1	Botany	C2	Theory	4	4	50	50	100
	Botany		Practical	2	1		50	50
MajorSubject-2	Chemistry	C2	Theory	4	4	50	50	100
	Chemistry		Practical	2	1		50	50
Vocational	BasicAnalyticalChemistry-I	C3	Theory	4	4	50	50	100
	BasicAnalyticalChemistry-I		Practical	2	1		50	50
	HealthEducationandCommunityPharmacy	C4	Theory	2	2	-	50	50
	HealthEducationandCommunityPharmacy		Project	2	1	-	50	50
			TOTAL	36	30	250	650	900

Category	Subject/Paper	Course	Theory /Practical	No. ofHrs./ Week	No ofcredits	Evaluation		
						Internal	External	TOTAL
Firstlanguage	ENGLISHPRAXISCOURSE-III		Theory	4	3	40	60	100
SecondLanguage	Telugu/Sanskrit/Hindi		Theory	4	3	40	60	100
LifeSkillCourse-I	EnvironmentEducation		Theory	2	2	-	50	50
LifeSkillCourse-II	PersonalityDevelopmentand Leadership		Theory	2	2	-	50	50
SkillDevelopment Course	EnvironmentAudit		Theory	2	2	-	50	50
MajorSubject-1	Botany	C3	Theory	4	4	40	60	100
	Botany		practical	2	1		50	50
MajorSubject-2	Chemistry	C3	Theory	4	4	40	60	100
	Chemistry		Practical	2	1		50	50
Vocational	AdvancedPharmaceutics-I	C5	Theory	4	4	40	60	100
	AdvancedPharmaceutics-I		Practical	2	1		50	50
	AdvancedPharmaceutics-II	C6	Theory	2	2	-	50	50
	AdvancedPharmaceutics-II		Project	2	1	-	50	50
			TOTAL	36	30	200	700	900

P.R.GOVERNMENT COLLEGE(A),
KAKINADADEPARTMENTOFCHEMISTRY
B.VOC(PHARMACEUTICALCHEMISTRY)(BIOLOGYSTREAM)CU
RRICULARFRAMEWORK(CREDITSTABLE)
Semester–IV

Category	Subject/Paper	Course	Theory /Practical	No. ofHrs./ Week	No ofcredits	Evaluation		
						Internal	External	TOTAL
MajorSubject-1	Botany	C4	Theory	4	4	40	60	100
	Botany		Practical	2	1		50	50
	Botany	C5	Theory	4	4	40	60	100
	Botany		Practical	2	1		50	50
MajorSubject-2	Chemistry	C4	Theory	4	4	40	60	100
	Chemistry		Practical	2	1		50	50
	Chemistry	C5	Theory	4	4	40	60	100
	Chemistry		Practical	2	1		50	50
Vocational	BasicAnalyticalChemistry-II	C7	Theory	4	4	40	60	100
	BasicAnalyticalChemistry-II		Practical	2	1		50	50
	IndustrialSafetyandManagement	C8	Theory	4	4	40	60	100
	IndustrialSafetyand Management		Practical	2	1		50	50
			TOTAL	36	30	255	645	900

P.R.GOVERNMENT COLLEGE(A),
KAKINADADEPARTMENTOFCHEMISTRY
B.VOC(PHARMACEUTICALCHEMISTRY)(BIOLOGYSTREAM)CU
RRICULARFRAMEWORK(CREDITSTABLE)

Semester-V

Subject/Paper	Theory /Practical	Nooforedits	Evaluation
FirstPhaseofApprenticeshipbetween1st and2nd year(SummerVacation)		04	100
SecondPhaseofApprenticeshipbetween2nd and3rd year(Summer Vacation)		04	100
INDUSTRIALINTERNSHIP		12	200
TOTAL		**20**	**400**

P.R.GOVERNMENT COLLEGE(A),
KAKINADADEPARTMENTOFCHEMISTRY
B.VOC(PHARMACEUTICALCHEMISTRY)(BIOLOGYSTREAM)CU
RRICULARFRAMEWORK(CREDITSTABLE)
Semester–VI

Category	Subject/Paper	Course	Theory /Practical	No. ofHrs./ Week	No ofercdits	Evaluation		
						Internal	External	TOTAL
Vocational	PharmaRegulatoryAffairs	C9	Theory	4	4	40	60	100
	PharmaRegulatoryAffairs		Practical	2	1		50	50
	PharmaceuticalInorganicChemistry	C10	Theory	4	4	40	60	100
	PharmaceuticalInorganicChemistry		Practical	2	1		50	50
	AdvancedAnalyticalChemistry	C11	Theory	4	4	40	60	100
	AdvancedAnalyticalChemistry		Practical	2	1		50	50
	BasicQualityControlandQualityAssurance	C12	Theory	4	4	40	60	100
	BasicQualityControlandQualityAssurance		Practical	2	1		50	50
	DocumentationforQualityControl	C13	Theory	4	4	40	60	100
	DocumentationforQualityControl		Practical	2	1		50	50
	PharmaceuticalandMedicinal Chemistry	C14	Theory	4	4	40	60	100
	PharmaceuticalandMedicinal Chemistry		Practical	2	1		50	50
			TOTAL	36	30	255	645	900

P.R.GOVERNMENTCOLLEGE(AUTONOMOUS)KAKINADA

CURRICULARFRAMEWORKFORB.VOCCOURSESUNDERNSQFFORTHEYEAR2020-21

B.VocPharmaceuticalChemistry(Mathsstream/Biologystream)

SUBJECT/SEMESTER		I		II		III		IV		V		VI			
		H/W	C	H/W	C	H/W	C	H/W	C	H/W	C	H/W	C		
English		4	3	4	3	4	3								
SecondLanguage(Telugu/Hindi/Sanskrit)		4	3	4	3	4	3								
LifeSkillCourses		2	2	2	2	2+2	2+2								
SkillDevelopmentCourses		2	2	2+2	2+2	2	2								
CoreSubjects															
MajorSubject-1	C1 to C5Maths/Botany (Theory&Practicals)	6/4+2	4+1	6/4+2	4+1	6/4+2	4+1	4+2 4+2	4+1 4+1						
MajorSubject-2	C1 to C5Chemistry (Theory&Practicals)	4+2	4+1	4+2	4+1	4+2	4+1	4+2 4+2	4+1 4+1						
Vocational	C1toC14includingSECPharmaceuticalChemistry (Theory&Practicals)	4+2	4+1	4+2	4+1	4+2	4+1	4+2 4+2	4+1 4+1	4+2 4+2 4+2 4+2 4+2 4+2	4+1 4+1 4+1 4+1 4+1 4+1				
	C2, C4, C6 (Theory andLab/Institutional/IndustrialTraining PharmaceuticalChemistry	2+2	2+1	2+2	2+1	2+2	2+1								
TotalHrs/Week(AcademicCredits)		34	**28**	36	**30**	36	**30**	36	**30**	36	**30**		**12**	**4**	**4**
ExtensionActivities															
NCC/NSS/Sports/ExtraCurricular									2						
Yoga							1		1						
ExtraCredits															
Hrs/W(TotalCredits)		34	**28**	36	**30**	36	**31**	36	**33**	36	**30**		**12**	**4**	**4**

ThirdPhaseofApprenticeshipforthecentireV/VISemester

rstandSecondPhase(2Spells)ofApprenticeshipbetween1stand2ndye arandbetween2ndand3rdyearSummerVacation

MarksandCreditsdistribution

S.No.	CourseType	No. ofCourses	CoursewiseTeachingHrs/Week	Credits foreach Course	Total Credits	EachCourseEvaluation				Total(Theory +Practical)	TotalMarks(MathsStream/ BiologyStream
						Theory			Practical (MathsStream/Biology		
						Continuous Assessment	End Semester	Total			
1	English	3	4	3	9	40	60	100		100	300
2	SecondLanguage	3	4	3	9	40	60	100		100	300
3	LifeSkillCourses	4	2	2	8	0	50	50		50	200
4	SkillDevelopmentCourses	4	2	2	8	0	50	50		50	200
5	Core/SE–IMaths/Botany	5	6/4+2	4+1	25	40	60	100	0/50	100/150	500/750
6	Core/SE–II Chemistry	5	4+2	4+1	25	40	60	100	0/50	100/150	750
7	VocationalCourses(C1toC14) PharmaceuticalChemistry	11	4+2	4+1	55	40	60	100	50	150	1650
	VocationalCourses C2,C4,C6 PharmaceuticalChemistry	3	2+2	2+1	9		50	50	50	100	300
8	SummerVacationInternship	2		4	8					100	200
9	IndustrialInternshipforonefullSemester	1		12	12					200	200
10	ExtensionActivities(NonAcademicCredits)										
	NCC/NSS/Sports/ExtraCurricular			2	2						
	Yoga	2		1	2						
	ExtraCredits										
	Hrs/W(Total Credits)&Marks	**43**			**172**						**4600/4850**

PITHAPURRAJAH'SGOVERNMENTCOLLEGE(AUTONOMOUS),KAKINADA B.VOCCOURSESUNDERNSQFSCHEME STUDENTSELIGIBILITYANDFACULTYELIGIBILITY			
S.NO.	NAMEOFTHECOURSE	STUDENTS ELIGIBILITY (10+2OEQUIVALENTWITHSPECIFICGROUPIFANY)	FACULTYELIGIBILITYWITHSPECIALIZATION
1	B.VOC(COMMERCIALAQUACULTURE)	Intermediate/10+2or equivalentwithBi.P.C/Biology	M.Sc Aquaculture/MarineBiology/Zoologywithfisherybiologyspe
2	B.VOC(HORTICULTURE)	Intermediate/10+2or equivalentwithBi.P.C/Biology	M.ScHorticulture/Biology/BotanywithHorticulture Specialization
3	B.VOC(PHARMACEUTICALCHEMISTRY)	Intermediateor10+2with MPC/BiPCgroup	M.Pharm/M.Sc(PharmaceuticalChemistry)/M.Sc(Chemistry)
4	B.VOC(FOODTECHNOLGY)	Intermediateor10+2with MPC/BiPCgroup	M.Sc(FoodTechnology)/M.Sc(Food Processing)/M.Sc(FoodandNutrition)
5	B.VOC(JOURNALISMAND MASSCOMMUNICATION)	Intermediateor10+2or equivalent	M.A(Journalism)
6	B.VOC(HOTELMANAGEMENT)	Intermediate/10+2orequivalent	MBA(HotelManagement/M.ComHotelManagement/M.Comor MBAwithDiplomainHotelManagement

QUESTIONPAPERSETTERSFORB.VOC(PHARMACEUTICALCHEMISTRY)

ThefollowingpapersettersforVocational(PharmaceuticalChemistry)papersarerecommended.

S. No.	Name of the Faculty	Designation	AddressforCorrespondence	Mobile Number	E-mailID
1	SriV.Sanjeev Kumar	Lecturerin Chemistry	P.R. Government Degree College,Kakinada,EastGodavariDistrict.	9849324966	skvudi1972@gmail.com
2	MallikarjunaSarma	LecturerinChemistry	A.S.D.GOVERNMENT COLLEGE for women (A),Kakinada Kakinada,EastGodavari District.	9676822550	V.mallikarjunasarma@gmail.com
3	SriV.Sridhar	Lecturerin Chemistry	Government arts college (A), RAJAMUNDRY, EastGodavari District	8919262964, 7386048119	sridhar.vegi07@gmail.com
4	Dr.B. Mallikarjuna	Lecturerin Chemistry	GovernmentCollege(Autonomous), Rajahmundry	8985503523	mallik.chem@gmail.com
5	Dr.G.Venkata Rao	Lecturerin Chemistry		9440444223	gnrgjcn@gmail.com
6	SriB.Venkata Rao	LecturerinChemistry	Government arts college (A), RAJAMUNDRY, EastGodavari District		venkatbasa@gmail.com
7	Smt.Manchiraju Padmaja	Lecturerin Chemistry	Government arts college (A), RAJAMUNDRY, EastGodavariDistrict	9441653995	padmaja717@gmail.com

P.R.GOVERNMENTCOLLEGE(A),KAKINADA

B.Voc(PHARMACEUTICALCHEMISTRY)SECOND YEAR-IIISEMESTER

Course-5:ADVANCEDPHARMACEUTICS-I

Scope:

Thepurposeofthiscourseistointroducetostudentsanumberofmethods for the manufacture of solid dosage forms. This course alsointroducedanumberofmethodsforthemanufactureofsterileproductsan dParenterals.

Objectives:

Afterthesuccessfulcompletionofthiscourse,thestudentwillbeableto

i. Sizereductionmethodsinthemanufactureoftablets
ii. Sizeseparationmethodsinthemanufactureoftablets
iii. Differentsterilizationprocesses
iv. ManufactureofParenterals

UNIT:I

Size reduction, objectives, and factorsaffecting size reduction,methods ofsizereduction-studyofHammermill,ballmill,FluidenergymillandDisintegrator.

Sizeseparation-

sizeseparationbysifting.Officialstandardsforpowders.Sedimentationmethodsofsizes eparation.ConstructionandworkingofCycloneseparator.

UNIT:II

MixingandHomogenization- Theory of mixing

Liquidmixingandpowdermixing,Mixingofsemisolids.StudyofsilversonMixer-Homogenizer,planetaryMixer;Agitatedpowdermixer;TripleRollerMill;PropellerMixer,coll oidMillandHandHomogenizer.Doubleconemixer, Twinshell Mixer; propellar Turobine Mixer Mixer,

Clarification and Filtration-Theory of filtration, Filter media; Filter aids andselectionoffilters.Studyofthefollowingfiltrationequipments-FilterPress,SinteredFilters,FilterCandles,Metafilter.; Factors influencing filtration

UNIT:III

Sterilization–Conceptofsterilizationanditsdifferencesfromdisinfection- ; Aseptic area. Thermalresistanceofmicro-organisms.Detailedstudyofthefollowingsterilizationprocess. (i)Sterilizationwithmoistheat,(ii)Dryheatsterilization,(iii)Sterilizationbyradiation, (iv)Sterilizationbyfiltrationand(v)Gaseoussterilization.

UNIT:IV

ParenteralsPreparations-Routesofadministrationofparentalproducts-Typesofparentalproducts-Formulationofparentalproducts-Asepticworktopreventcontamination-ManufacturingofParenterals-EvaluationofParenterals.; sources of Contamination & prevention.

RecommendedBooks:

1. CooperandGunn'sDispensingforPharmaceuticalStudents,CBSpublishers,Delhi
2. CooperandGunn'sTutorialPharmacy,S.J.Carter.
3. TheoryandpracticeofIndustrialPharmacybyLachman.
4. Remington's,TheScienceandPracticeofPharmacy,MackPublishingCo.Easton.

P.R.GOVERNMENTCOLLEGE(A),KAKINADA

B.Voc(PHARMACEUTICAL CHEMISTRY)SECONDYEAR-IIISEMESTER

Course-5:ADVANCEDPHARMACEUTICS-I

WEIGHTAGETOCONTENT

Sl.No.	CourseContent	Essay(10M)	Short(5M)	Totalmarks
1.	UNIT-I	2	2	30
2.	UNIT-II	2	2	30
3.	UNIT-III	2	2	30
4.	UNIT-IV	2	2	30
	Total	8	8	120

P.R.GOVERNMENTCOLLEGE(A),KAKINADA

B.Voc(PHARMACEUTICALCHEMISTRY)

SECONDYEAR-IIISEMESTER

Course-5:ADVANCEDPHARMACEUTICS-I

Time2hrs.30min Maxmarks-60

SECTION-A

Answerthefollowingquestions 4x10=40M

1. Onequestionistobesetfromunit-I

   Or

   Onequestionistobesetfromunit-I
2. Onequestionistobesetfromunit-IIOr

   Onequestionistobesetfromunit-II
3. Onequestionistobesetfromunit-IIIOr

   Onequestionistobesetfromunit-III
4. Onequestionistobesetfromunit-IVOr

   Onequestionistobesetfromunit-IV

SECTION-B

AnsweranyFOURquestions 4x5=20M

5. Onequestionistobesetfromunit-I
6. Onequestionistobesetfromunit-I
7. Onequestionistobesetfromunit-II
8. Onequestionistobesetfromunit-II
9. Onequestionistobesetfromunit-III
10. Onequestionistobesetfromunit-III
11. Onequestionistobesetfromunit-IV
12. Onequestionistobesetfromunit-IV

P.R.GOVERNMENTCOLLEGE(A),KAKINADA

B.Voc(PHARMACEUTICALCHEMISTRY)

SECONDYEAR-IIISEMESTER

Course-5:ADVANCEDPHARMACEUTICS-I

QUESTIONBANK(ESSAY QUESTIONS)

UNIT-I

1. Writethefactorsaffectingsizereduction.
2. Explaintheconstructionandworkingofhammermillandballmill.
3. Explainsedimentationmethodsforsizeseparation.

UNIT-II

1. Describeworkingofpropellermixerandcolloidalmillformixingliquids.
2. Writeanessayon(i)Filterpressand(ii)Sinteredfilters.
3. Writeanessayon(i)Planetarymixerand(ii)TripleRollermill.

UNIT-III

1. Explainthefollowing.
   i. Sterilizationbyfiltration
   ii. Sterilizationbymoistheat
2. Explainthefollowing.
   iii. Sterilizationbyradiation.
   iv. SterilizationbyGas

UNIT-IV

1. DescribedifferentroutesofadministrationofParenterals.
2. DescribetheformulationofParenterals.
3. Explainthestepsinvolvedinthemanufactureof Parenteralpreparations.

(SHORTQUESTIONS)

UNIT-I

1. Writeanoteonobjectivesofsizereduction.
2. Writeashortnoteondisintegrator.
3. Writeanoteonconstructionandworkingoffluidenergymill.
4. Writeaboutofficialstandardsforpowders.

UNIT-II

1. Writeanoteonhomogenizationandmixing.
2. Writeashortnoteondoubleconemixer.3
.Write about the principle of homogenizer.
4. Writeanoteonhandhomogenizer.
5. Writeanoteonclassificationandfiltration.
6. Writeanoteonfiltercandles.

UNIT-III

1. Explaintheconceptofsterilization.Howdoesitdifferfromdisinfection?
2. Writeaboutthermalresistanceofmicroorganisms.
3. Writeashortnoteondryheat.

UNIT-IV

1. Whataretheessentialqualitiesofaparentalproduct.
2. Defineparentalpreparationandtypesofparentalpreparations.

P.R.GOVERNMENTCOLLEGE(A),KAKINADA

B.Voc(PHARMACEUTICALCHEMISTRY)

SECONDYEAR-IIISEMESTER

Course-58:ADVANCEDPHARMACEUTICS-I

PRACTICALS

1.Evaluation of factors effecting rate of filtration

2.Preparation and submit zinc starch dusting powder

3.Determination of particle size distribution by sieving method

4.Evaluate the Ibuprofen tablet by dissolution & disintegration method

5.Preparation of ascorbic acid injection

P.R.GOVERNMENTCOLLEGE(A),KAKINADA

B.Voc(PHARMACEUTICALCHEMISTRY)

SECONDYEAR-IIISEMESTER

Course-5: ADVANCEDPHARMACEUTICS-II

Scope:

Thepurposeofthiscourseistointroducetostudentsanumberofmethods for the manufacture of semi solid dosage forms. This coursealsointroducedanumberofmethodsforthemanufactureofophthalmic productsandcosmetics.

Objectives:

Afterthesuccessfulcompletionofthiscourse,thestudentwillbeableto

i. Sizereductionmethodsinthemanufactureoftablets
ii. Sizeseparationmethodsinthemanufactureoftablets
iii. Differentsterilizationprocesses
iv. ManufactureofParenterals

UNIT–I:
SEMISOLIDDOSAGEFORMS

Definition,Typesofsemisoliddosageforms,Characteristicsofanidealointrment,classificatio nofointments,typesofointmentbases,Advantages&Disadvantagesofointmentbases,prep arationofointments-triturationmethod,fusionmethod,storageofointments. ; Evaluation tests for ointments

UNIT-II
STERILEDOSAGEFORMS

DefinitionofParenterals,Advantages&DisadvantagesofParenterals,routesofadminis trationofParenterals,typesofParenteralpreparation,formulationofParenteralpreparat ions.ProcessingofParenteralpreparations.EvaluationofParenteralpreparations.

UNIT-III
OPHTHALMICPRODUCTS

Definition,Characteristicsofidealophthalmicproducts,typesofophthalmicproducts-eyedrops-factorseffectingformulationofeyedrops,containersforeyedrop.Eyelotions-sodiumchlorideandsodiumbicarbonateeyelotions.eyeointments-characteristicsof.eyeointments-atropine.Eyesuspension-

characteristicsof.eyesuspension.Contactlens-
typesofcontactlens,storagesolutionofcontactlens.; Evaluation tests for opthalamic products

UNIT-IV
DENTAL&COSMETICPRODUCTS

DefinitionofDentifrices,CharacteristicsofidealDentifrices,ingredientsofDentifrices,to othpaste,toothpowder.
Definitionofcosmetics,classificationofcosmetics,coldcreams,lipsticks,deodorants,s hampoos,shavingcream.; sunscreen products; Baby care products

REFERENCEBOOKS:
IntroductiontopharmaceuticsIIbyA.K.Gupta,S.S.Bajajpharmaceuti csIIbyDr.S.Sambathkumar,Dr.N,murgesh.

P.R.GOVERNMENTCOLLEGE(A),KAKINADA

B.Voc(PHARMACEUTICALCHEMISTRY)SE

CONDYEAR-IIISEMESTER

Course-6:ADVANCEDPHARMACEUTICS-II

Weightagetocontent

Sl.No.	CourseContent	Essay(10M)	Short(5M)	Totalmarks
1.	UNIT-I	2	1	25
2.	UNIT-II	1	2	20
3.	UNIT-Iii	1	2	20
4.	UNIT-IV	2	1	25
	Total	6	6	90

P.R.GOVERNMENTCOLLEGE(A),KAKINADA

B.Voc(PHARMACEUTICALCHEMISTRY)SE

CONDYEAR-IIISEMESTER

Course-6:ADVANCEDPHARMACEUTICS-II

ModelQuestionPaper

Time2hrs. **Max.Marks-50**

SECTION-A

Answerthefollowingquestions.EachQuestioncarries10Marks **3x10=30M**

1. Onequestionistobesetfromunit-I

   Or

   Onequestionistobesetfromunit-I
2. Onequestionistobesetfromunit-IIOr

   Onequestionistobesetfromunit-III
3. Onequestionistobesetfromunit-IVOr

   Onequestionistobesetfromunit-IV

SECTION-B

AnsweranyFOURquestions.EachQuestioncarries5Marks. **4x5=20M**

4. Onequestionistobesetfromunit-I
5. Onequestionistobesetfromunit-II
6. Onequestionistobesetfromunit-II
7. Onequestionistobesetfromunit-III
8. Onequestionistobesetfromunit-III
9. Onequestionistobesetfromunit-IV

P.R.GOVERNMENTCOLLEGE(A),KAKINADA

B.Voc(PHARMACEUTICALCHEMISTRY)SE

CONDYEAR-IIISEMESTER

Course-6:ADVANCEDPHARMACEUTICS-II

QUESTIONBANK

ESSAYQUESTIONS(10M)

UNIT–I

1. Explaintheclassificationofointments
2. Explaintheclassificationofointmentbases.
3. Explainthepreparationofointmentsby Triturationmethod.
4. Explainthepreparationofointments by Fusionmethod.

UNIT–II

1. ExplaintheformulationofParenteralpreparations.
2. Explaintheprocessingofparenteralpreparations.
3. Explaintheevaluationaspects of Parenteralpreparations.

UNIT–III

1. Explainthefactorsaffectingtheformulationofeyedrops.
2. Describedifferenttypesofcontainersforeyedrops.

UNIT–IV

1. Explaintheingredientsofdentifrices.
2. Definecosmetics.Explaintheclassificationofcosmetics.
3. Writebrieflyonthefollowing.
   i. Deodorants
   ii. Shampoos

SHORTANSWERQUESTIONS(5M)

UNIT–I

1. Writethecharacteristicsofanidealointment.
2. Writetheadvantagesofointmentbases.
3. Explainthestorageofointments.

UNIT–II

1. DefineParenterals.WriteadvantagesofParenterals.
2. DefineParenterals.WritedisadvantagesofParenterals.

3. WritedifferenttypesofParenteralpreparations.
4. Writedifferentroutesofadministrationof Parenterals.

UNIT–III

1. Whatareophthalmicpreparations?Writedifferenttypesofophthalmicproducts.
2. Writethecharacteristicsofidealophthalmicproducts.
3. Writethecharacteristicsofeyeointments.
4. Whatarecontactlenssolutions?Writedifferenttypesofcontactlens.

UNIT–IV

1. Writethecharacteristicsofidealdentifrices.
2. Writethepreparationoftoothpaste.
3. Writethepreparationoftoothpowder.

P.R.GOVERNMENTCOLLEGE(A),KAKINADA

B.Voc(PHARMACEUTICALCHEMISTRY)SE

CONDYEAR-IIISEMESTER

Course-6:ADVANCEDPHARMACEUTICS-II

Practicals

1. Preparationsinvolvingophthalmicpreparation
2. Preparationsinvolvingasepticteehniques
3. Preparation of coldCreams
4. Preparation of vanishing cream
5. Preparation of salicylic acid Ointment
6. Preparation of benzoic acid Ointment