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**CHRISTIAN COLLEGE KATTAKADA**  
AFFILIATED TO THE UNIVERSITY OF KERALA  
Thiruvananthapuram, Kerala 695572

# **CBCSS ELECTIVE COURSE SYSTEM**



**CRITERION 1. 2. 1.**



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## **WHAT'S INSIDE?**

Documents on:

-  Elective courses: UG - Course Structure & Syllabus
  -  Elective courses: PG - Course Structure & Syllabus
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UG

**UNIVERSITY OF KERALA**

**THIRUVANANTHAPURAM**



**COURSE STRUCTURE AND SYLLABUS**

**For**

**FIRST DEGREE PROGRAMME**

**IN**

**BOTANY**

**UNDER**

**CHOICE BASED CREDIT- SEMESTER SYSTEM**

*(w.e.f. 2019 admission onwards)*

**Table 1. General Structure of the First Degree Programme in Botany**

Sem No.	Course Code	Course Title	Instructional hours/ week		Credits	Uty Exam Duration	Evaluation		Total credits
			T	P			Internal	University exam	
I	EN1111	English Language I Additional	5	-	4	3hrs	20%	80%	16
	1111	Additional Language I	4	-	3	"			
	EN1121	Foundation Course I	4	-	2	"			
	BO1141	Core Course I	2	2	3	"			
	CH/BC1131	Compl. Course I (CH/BC)	2	2	2	"			
	ZO1131	Complementary Course II (ZO)	2	2	2	"			
II	EN1211	English Language II	5	-	4	"	20%	80%	17
	EN1212	English Language III	4	-	3	"			
	1211	Additional Language II	4	-	3	"			
	BO1221	Foundation Course II	2	2	3	"			
	CH/BC1231	Compl. Course III(CH/BC)	2	2	2	"			
	ZO1231	Compl. Course IV(ZO)	2	2	2	"			
III	EN1311	English Language IV	5	-	4	"	20%	80%	17
	1311	Additional Language III	5	-	4	"			
	BO1341	Core Course II	3	2	3	"			
	CH/BC1331	Compl. Course V(CH/BC)	3	2	3	"			
	ZO1331	Compl. Course VI(ZO)	3	2	3	"			
IV	EN1411	English Language V	5	-	4	"	20%	80%	25
	1411	Additional Language IV	5	-	4	"			
	BO1441	Core Course III	3	2	3	"			
	CH/BC1431	Compl. Course VII(CH/BC)	3	2	3	"			
	ZO1431	Compl. course VIII(ZO)	3	2	3	"			
	CH/BC1432	Compl IX (Practical CH/BC)	-	(8)*	4	"			
	ZO1432	Compl X (Practical ZO)	-	(8)*	4	"			
V	BO1541	Core Course IV	4	3	4	"	20%	80%	20
	BO1542	Core Course V	5	2	4	"			
	BO1543	Core Course VI	4	2	3	"			
	BO1544	Core (Practical-1) VII	-	(4)*	3	"			
	BO1545	Core (Practical-2) VIII	-	(4)*	4	"			
		Open Course I	3	-	2	"			
		BO1551.1 Horticulture							
		BO1551.2 Mushroom cultivation & Marketing							
		BO1551.3 Forestry							
VI		Project	-	2			20%	80%	25
	BO1641	Core Course IX	5	2	4	"			
	BO1642	Core Course X	4	2	4	"			
	BO1643	Core Course XI	4	2	4	"			
	BO1644	Core (Practical-3) XII	-	(5)*	3	"			
	BO1645	Core (Practical-4) XIII	-	(8)*	4	"			
	BO1651	Elective Course II	3	-	2	"			
BO1646	Project		3	4				120	

L = Lecture P = Practical (\*) Practical hour already distributed in the semester concerned

**UNIVERSITY OF KERALA**

**SCHEME AND SYLLABUS**

**(OUTCOME BASED)**

**FIRST DEGREE PROGRAMME  
IN CHEMISTRY**

**(BSc)**

**UNDER CHOICE BASED  
CREDIT AND SEMESTER SYSTEM**

**Core Courses, Foundation Course II,  
Open and Elective Courses**

**2020 ADMISSION ONWARDS**

SEMESTER III								
EN1311	English IV	5		4	3hrs	20	80	18
I311	Additional Language III	5		4	3hrs	20	80	
MM1331.2	Complementary Course V	5		4	3hrs	20	80	
PY1331.2	Complementary Course VI	3		3	3hrs	20	80	
	Complementary Course Lab of PY1331.2		2	-	-	-	-	
CH1341	Core Course II	3		3	3hrs	20	80	
	Core Course Lab I of CH1341		2	-	-	-	-	
SEMESTER IV								
EN1411	English V	5		4	3hrs	20	80	24
1411	Additional Language IV	5		4	3hrs	20	80	
MM1431.2	Complementary Course VII	5		4	3hrs	20	80	
PY1431.2	Complementary Course VIII	3	2	3	3hrs	20	80	
	Complementary Course Lab of PY1131.2 PY1231.2 PY1331.2 & PY1331.2			4	3hrs	20	80	
CH1441	Core Course III	3		3	3hrs	20	80	
CH1442	Core Course IV- Lab I of CH1141		2	2	3hrs	20	80	
SEMESTER V								
CH1541	Core Course V	3		4	3hrs	20	80	19
CH1542	Core Course VI	4		4	3hrs	20	80	
CH1543	Core Course VII	4		4	3hrs	20	80	
CH1544	Core Course VIII Lab II		5	3	6hrs	20	80	
CH 1545	Core Course IX Lab III		4	2		20	80	
1551	Open Course	3		2	3hrs	20	80	
	Project		2	-	-	-	-	
SEMESTER VI								
CH1641	Core Course X	3		4	3hrs	20	80	23
CH1642	Core Course XI	4		4	3hrs	20	80	
CH1643	Core Course XII	4		4	3hrs	20	80	
CH1644	Core Course XIII Lab IV			3	6hrs	20	80	
CH1645	Core Course XIV Lab V			2		20	80	
CH1661.1/ CH1661.2/ CH1661.3/ CH1661.4	Elective Course	3		2	3hrs	20	80	
CH1646	Project and Factory Visit		3	4	Viva voce	-	100	

CE -Continuous Evaluation, ESE- End Semester Evaluation

**Board of Studies in Mathematics (UG)  
UNIVERSITY OF KERALA**

**First Degree Programme in  
MATHEMATICS  
under Choice Based Credit and Semester System**

**SYLLABUS  
for 2018 admission onwards**

### STRUCTURE OF ELECTIVE COURSES

Sem	Course Code	Course title	Instr. hrs. per week	Credit
VI	MM 1661.1	Graph Theory	3	2
VI	MM 1661.2	Linear Programming with SageMath	3	2
VI	MM 1661.3	Numerical Analysis with SageMath	3	2
VI	MM 1661.4	Fuzzy Mathematics	3	2

### STRUCTURE OF THE COMPLEMENTARY COURSES

#### Complementary Course in Mathematics for First Degree Programme in Physics

Course Code	Sem.	Title of Course	Contact hrs/week	No. of Credits
MM 1131.1	1	Calculus with applications in Physics – I	4	3
MM 1231.1	2	Calculus with applications in Physics – II	4	3
MM 1331.1	3	Calculus and Linear Algebra	5	4
MM 1431.1	4	Complex Analysis, Special Functions and Probability Theory	5	4

#### Complementary Course in Mathematics for First Degree Programme in Chemistry

Course Code	Sem.	Title of Course	Contact hrs/week	No. of Credits
MM 1131.2	1	Calculus with applications in Chemistry – I	4	3
MM 1231.2	2	Calculus with applications in Chemistry – II	4	3
MM 1331.2	3	Linear Algebra, Probability Theory & Numerical Methods	5	4
MM 1431.2	4	Differential Equations, Vector Calculus and Abstract Algebra	5	4



**UNIVERSITY OF KERALA**

**REVISED SYLLABI FOR  
FIRST DEGREE PROGRAMME IN**

**PHYSICS**

**UNDER**

**CHOICE BASED-CREDIT & SEMESTER-**

**SYSTEM (CBCSS)**

**(2018 admission onwards)**

### I. General Structure for the First-Degree Programme in Physics

Sem. No.	Course title	Instructional hours/week		Credit	University Exam duration	Evaluation		Total credit	
		L	P			Internal	Uty. Exam		
I	EN1111 English Lang I	5		4	3 hours			16	
	1111 Addl Lang I	4		3	"				
	EN1121 Foun Course I	4		2	"	20%	80%		
	PY1141 Core Course I	2		2	"				
	Core pract. I	-	2	-	-				
	MM1131.1 Compl. Course I	2		2	3	3 hours			
	Compl. Course II (CH1131.1/ST1131.2/PCH1131.6/EL1131)	2		2	2	"			
II	EN1211 Eng Lang. II	5		4	3 hours			17	
	EN1212 Eng Lang. III	4		3	"				
	1211 Addl Lang. II	4		3	"	20%	80%		
	PY1241 Core Course II	2		2	"				
	Core pract. I		2						
	MM1231.1 Compl. Course III	2		2	3	"			
Compl. Course IV (CH1231.1/ST1231.2/PCH1231.6/EL1231)	2		2	2	"				
III	EN1311 Eng Lang. IV	5		4	3 hours			18	
	1311 Addl Lang. III	5		4	"				
	PY1341 Core Course II	3		3	"	20%	80%		
	Core Pract I	-	2	-	-				
	MM1331.1 Compl. Course V	3		2	4	3 hours			
	Compl. Course VI (CH1331.1/ST1331.2/PCH1331.6/EL1331)	3		2	3	"			

IV	EN1411 Eng Lang. V	5	4	3 hours				
	1411Addl Lang. IV		5	4	"	20%	80%	25
	PY1441Core Course III		3	3	"			
	PY 1442 Core (Pract I) IV		-	2 3	"			
	MM1431.1 Compl. Course VII		5	- 4	3 hours			
	Compl. Course VIII (CH1431.1/ST1431.2/ PCH1431.6/EL1431)		3	- 3	"			
	Compl. (Practical) IX (CH1432.1/ST1432.2/ PCH1432.6/EL1432)		-	2 4	"			
	V	PY1541 Core Course V		4	- 4	3 hours		
PY1542 Core Course VI			4	- 4	"	20%	80%	18
PY1543 Core Course VII			4	- 4	"			
PY1544 Core Course VIII Core (PracticalIII)			4	- 4	"			
Open Course (PY1551.1/PY1551.2/ PY1551.3/PY1551.4/ PY1551.5)			3	4 - - 2	3 hours			
Project			-	2 -	-			
VI		PY1641 Core Course IX		4	- 4	3 hours		
	PY1642 Core Course X		4	- 4	"	20%	80%	26
	PY1643 Core Course XI		4	- 4	"			
	PY1644 Core Course XII		4	- 3	"			
	PY1645 Core (Pract II) XIII		-	2 2	"			
	PY1646 Core (Pract III) XIV		-	2 3	"			
	Elective Course (PY1661.1/PY1661.2/ PY1661.3/PY1661.4/ PY1661.5)		3	- 2	"			
	PY1647 Project and Research Institute/Science Museum v Isit		-	2 4	-			

**UNIVERSITY OF KERALA**  
**FIRST DEGREE PROGRAMME IN STATISTICS**  
**CHOICE BASED CREDIT AND SEMESTER SYSTEM**  
**EFFECTIVE FROM 2018 ADMISSIONS**  
**(Revised)**  
**Aims and Objectives of the Programme**

**Aims:**

In this programme, we aim to provide a solid foundation in all aspects of statistics and to show a broad spectrum of modern trends in statistics and to develop experimental, computational and application skills of students. The syllabi are framed in such a way that it bridges the gap between the plus two and post graduate levels of statistics by providing a more complete and logical framework in almost all areas of basic statistics. The programme also aims.

- (i) to provide education in statistics of the highest quality at the undergraduate level and produce graduates of the caliber sought by industries and public service as well as academic teachers and researchers of the future.
- (ii) to attract outstanding students from all backgrounds.
- (iii) to provide an intellectually stimulating environment in which the students have the opportunity to develop their skills and enthusiasms to the best of their potential.
- (iv) to maintain the highest academic standards in undergraduate teaching.
- (v) to impart the skills required to gather information from resources and use them.
- (vi) to equip the students in methodology related to statistics.

**Objectives:**

By the end of the second semester, the students should have:

- (i) attained a common level in elementary and basic principles of statistics and laid a strong foundation in mathematics for their future courses.
- (ii) developed their experimental and data analysis skills through a wide range of expertise in handling applications of statistics by their training acquired in the

### Course Structure: Core Courses

Sem	Course title	Instruction hour per week	Credit	Total hours/Semester	Evaluation	
					Internal	External
		L P				
I	ST:1141 Statistical Methods I	2 2	4	72	20%	80%
II	ST:1241 Statistical Methods II(Foundations course2)	2 2	3	72	20%	80%
III	ST:1341 Probability and Distribution-I	3 2	3	90	20%	80%
IV	ST:1441 Probability and Distribution-II ST:1442 Practical I	3 2	3 3	54 36	20%	80%
V	ST:1541 Limit Theorems and Sampling Distributions ST:1542 Estimation ST:1543 Testing of Hypothesis ST:1544 Sample Survey Methods ST:1551 Open Course 1 Project	5 3 2 3 2 3 2 3 2	4 3 3 4 2	90 90 90 54 36	20%	80%
VI	ST:1641 Design of Experiments and Vital Statistics ST:1642 Applied Statistics ST:1643 Operation Research and Statistical Quality Control ST:1644 Practical II ST:1645 Practical III ST:1646 Project ST:1651 Open Course 2 ST:1661 Elective	4 3 4 2 4 2 3 3	4 4 4 4 4 2	126 108 108 54 54	20%	80%

### Course Structure for Practical and Project for the Core Course

Sem	Title of the Paper	Duration of Exam	No. of credits	Evaluation weightage		Allotted hours	
				I.A	E.A	Per week	Per year
IV	ST:1442 Practical I	2 hrs	3	1	3	S <sub>3</sub> -2 S <sub>4</sub> -2	72
VI	ST:1644 Practical II	2hrs	4	1	3	S <sub>5</sub> -6 S <sub>6</sub> -6	216
	ST:1645 Practical III	2 hrs	3	1	3		
	ST:1646 Project		3	1	3		

2019. onwards

**FIRST DEGREE PROGRAMME IN ZOOLOGY**  
**Scheme of Instruction and Evaluation**

Semester	Course Code	Study Components	Instructional Hrs/week		Credit	Duration of Univ.Exam	Evaluation		Total Credit
			T	P			CE	ESE	
I	EN1111	English	5		4	3 Hrs	20%	80%	16
	1111	Additional language I	4		3	3 Hrs	20%	80%	
	EN 1121	Foundation course I	4		2	3 Hrs	20%	80%	
	CH1131.4	Complementary course I	2		2	3 Hrs	20%	80%	
		Complementary course I Practical of CH1131.4		2					
	BO1131	Complementary course II	2		2	3 Hrs	20%	80%	
		Complementary course II Practical of BO1131		2					
	ZO 1141	Core course I	3		3	3 Hrs	20%	80%	
	Core Course Practical of ZO1141		1						
II	EN1211	English II	4		3	3 Hrs	20%	80%	17
	EN1212	English III	5		4	3 Hrs	20%	80%	
	1211	Additional Language II	4		3	3 Hrs	20%	80%	
	CH1231.4	Complementary course III	2		2	3 Hrs	20%	80%	
		Complementary course III Practical of CH1231.4		2					
	BO1231	Complementary course IV	2		2	3 Hrs	20%	80%	
		Complementary course II Practical of BO1231		2					
	ZO1241	Core course II	3		3	3 Hrs	20%	80%	
		Core Course Practical of ZO1241		1					
	EN1311	English IV	5		4	3 Hrs	20%	80%	17
EN1312	Additional Language III	5		4	3 Hrs	20%	80%		
CH1331	Complementary course V	3		3					
III	CH1331.4	Complementary course V Practical of CH1331.4		2					
	BO 1331	Complementary course VI	3		3	3 Hrs	20%	80%	
	BO 1332	Complementary course VI Practical of BO 1331		2					
	ZO 1341	Foundation course II	3		3	3 Hrs	20%	80%	

4.3.

4.4.

4.5.

Refc

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8.

Semester	Course Code	Study Components	Instructional Hrs/week		Credit	Duration of Univ.Exam	Evaluation		T C
			T	P			CE	ESE	
	ZO 1341	Core course Practical of ZO1341		2					
IV	EN1411	English V	5		4	3 Hrs	20%	80%	
	EN1411	Additional Language II	5		4	3 Hrs	20%	80%	
	CH1431.4	Complementary course VII	3		3	3 Hrs	20%	80%	
	CH1432.4	Complementary course Practical of CH1131.4, CH1231.4, CH1331.4, CH1431.4		2	4	3 Hrs	20%	80%	
	BO1431	Complementary course VIII	3		3	3 Hrs	20%	80%	
	BO1432	Complementary course Practical of BO1131, BO1231, BO1331, BO1431		2	4	3 Hrs	20%	80%	
	ZO1441	Core course III	3		3	3 Hrs	20%	80%	
	ZO1442	Core course IV Practical of ZO1141, ZO1241, ZO1341		2	4	3 Hrs	20%	80%	
V	ZO1541	Core Course V	5		4	3 Hrs	20%	80%	1.
	ZO1542	Core Course VI	4		4	3 Hrs	20%	80%	
	ZO1543	Core Course VII	4		4	3 Hrs	20%	80%	
	ZO1551	Open Course I	3		2	3 Hrs	20%	80%	
		Core Course Practical of ZO1441		6					
		Project		2		3 Hrs	20%	80%	
		Field study/Study tour		1					
						3 Hrs	20%	80%	
VI	ZO 1641	Core Course VIII	5		4	3 Hrs	20%	80%	27
	ZO1642	Core Course IX	4		4	3 Hrs	20%	80%	
	ZO1643	Core Course X	4		3	3 Hrs	20%	80%	
	ZO1651	Elective Subject	3		2	3 Hrs	20%	80%	
	ZO1644	Core Course XI Practical II of ZO1541, ZO1541, ZO1543, ZO1341		2	4				
	ZO1645	Core Course XII Practical III of ZO1641, ZO1341, ZO1541		2	3	3 Hrs	20%	80%	
	ZO1646	Core Course XIII Practical IV of ZO1642, 1643, 1441		2	3				
	ZO1647	Project Field Study & Study tour		3	4	3 Hrs	20%	80%	



**FIRST DEGREE PROGRAMME IN ZOOLOGY**

**SCHEME OF INSTRUCTION OF CORE COURSES, FOUNDATION  
COURSE II & OPEN COURSES**

Course Code	Course Title	Sem I			Sem II			Sem III			Sem IV			Sem V			Sem VI			Total		
		Contact Hour		Credit	Contact Hour		Credit	Contact Hour		Credit	Contact Hour		Credit	Contact Hour		Credit	Contact Hour		Credit	Contact Hour	Credit	
		T	P		T	P		T	P		T	P		T	P		T	P				
ZO 1141	Animal Diversity I	3		3															3	3		
ZO 1241	Animal Diversity II				3		3												3	3		
ZO 1341	Foundation Course II							3		3									3	3		
ZO 1441	Ecology, Habitat Destruction & Disaster Management										3	3							3	3		
ZO 1442	Practical I of ZO 1141.1241.1341		1			1			2			2	4						6	4		
ZO 1541	Cell and Molecular Biology												4	4					4	4		
ZO 1542	Genetics and Biotechnology												4	4					4	4		
ZO 1543	Immunology and Microbiology												5	4					5	4		
ZO 1551	Open Course												3	2					3	2		
ZO 1641	Physiology and Biochemistry														5	4			5	4		
ZO 1642	Developmental Biology and Experimental Embryology														4	4			4	4		
ZO 1643	Ethologyevolution and Zoogeography														4	3			4	3		
ZO 1651	Elective Subject														3	2			3	2		
ZO 1644	Practical – II Cell Biology, Molecularbiology Immunology & Microbiology														2	2	2	2	4	4		
ZO 1645	Practical-III Physiology and Biological Chemistry and Bioinformatics														2		2	3	4	4		
ZO 1646	Practical-IV Developmental Biology Ecology Ethology Evolution and Zoogeography														2		2	3	4	3		
ZO 1647.1	Zoology Project														2		3	4	6	4		
ZO 1647.2	Held Study & Study Tour														1							

# BA Economics

## 2019 Admission

### Semester I

Sem No	Course No	Course Title	Instructional hours	Credits
I	EN 1111	Language Course I (English I)	5	4
	1111	Language Course II (Addl Language I)	4	3
	EN 1121	Foundation Course I	4	2
	EC 1141	Core I Introductory Micro Economics	6	4
	1131	Complementary I	3	2
	1131	Complementary II	3	2
			<b>Total</b>	<b>25</b>

### Semester II

Sem No	Course No	Course Title	Instructional hours	Credits
II	EN 1211	Language Course III (English II)	5	4
	1212	Language Course IV (English III)	4	3
	1211	Language Course V (Addl. Lang II)	4	3
	EC1241	Core II Intermediate Microeconomics	6	4
	1231	Complementary III	3	3
	1231	Complementary IV	3	3
			<b>Total</b>	<b>25</b>

### Semester III

Sem No	Course No	Course Title	Instructional hours	Credits
III	EN 1311	Language Course VI (English IV)	5	4
	1311	Language Course VII (Addl. Lan III)	5	4
	EC1321	Foundation Course II Informatics for Applied Econometrics	4	3
	EC1341	Core III Introductory Macroeconomics.	5	4
	1331	Complementary V	3	3
	1331	Complementary VI	3	3
			<b>Total</b>	<b>25</b>

# Scheme and Syllabus of Economics

## Semester IV

Sem No	Course No	Course Title	Instructional hours	Credits
IV	EN1411	Language Course VIII (English V)	5	4
	1411	Language Course IX (Addl.Lan IV)	5	4
	EC1441	Core IV Mathematical Methods for Economics	5	4
	EC1442	Core V Intermediate Macroeconomics	4	3
	1431	Complementary VII	3	3
	1431	Complementary VIII	3	3
		Total	25	21

## Semester V

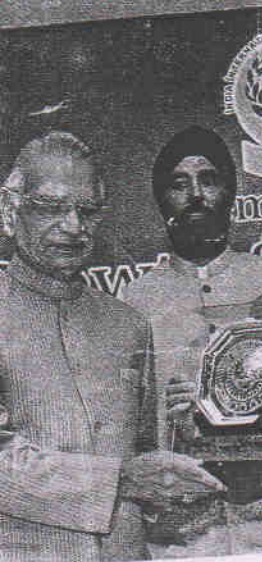
Sem No	Course No	Course Title	Instructional hours	Credits
V	EC1541	Core VI Methodology and Perspectives of Social Science	4 <sup>2+2</sup>	4
	EC1542	Core VII Statistical Methods for Economics	4 <sup>2+2</sup>	4
	EC1543	Core VIII Readings in Political Economy	4	4
	EC1544	Core IX Economic Growth and Development	3	2
	EC1545	Core X International Economics <sup>SP</sup>	4	3
	EC1551.1	Open Course I – Introductory Economics	3	2
	EC1551.2	Human Resource Management <sup>SP</sup>	3	2
	EC1551.3	Indian Economy Since Liberalisation	3	2
		Project / Dissertation	3	-
		Total	25	20



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Scheme and Syllabus of  
First Degree Programme in  
HISTORY (CBCSS)



Revised Syllabus

Revised Syllabus

Affiliated Colleges, Kerala University

For 2013 Admission (3<sup>rd</sup> to 5<sup>th</sup> semester) and

2014 Admission Onwards (1<sup>st</sup> to 6<sup>th</sup> semester)

	COURSE NO	COURSE TITLES	INSTR: HRS	NO. CRE
I	EN 1111	Language Course I (English-1)	5	4
	M/H 1111	Language Course II (Addl. Language)	4	3
	EN 1121	Foundation Course I	4	2
	HY 1141	Core I-Methodology and Perspectives of Social Sciences	6	4
	HY 1131.1 (EC/IH/SG)	Complementary I-History of Modern India (1857-1900), For Economics, Islamic History and Sociology.	3	2
	HY 1131.2 (EN/PL)	Complementary II- History of Modern World, (1789-1900), For English & Political Science	3	2
		Total	25	17
II	EN 1211	Language Course III ( English II)	5	4
	EN1212	Language Course IV (English III)	4	3
	M/H 1211	Language Course V (Addl. Language II)	4	3
	HY 1241	Core II-Cultural Formation of the Pre-Modern World	6	4
	HY 1231.1 (EC/IH/SG)	Complementary III- History of Modern India (1901-1920), For Economics, Islamic History and Sociology	3	3
	HY 1231.2 (EN/PL)	Complementary IV- History of Modern World, (1901-1920),for English & Political Science	3	3
		Total	25	20
III	EN 1311	Language Course VI ( English)	5	4
	M/H 1311	Language Course VII (Addl. Language III)	5	4
	HY 1321	Foundation Course II- Informatics	4	3
	HY 1341	Core III-Evolution of the early Indian society & Culture	5	4
	HY 1331.1 (EC/IH/SG)	Complementary V-History of Modern India (1921-1947), For Economics, Islamic History and Sociology	3	3
	HY 1331.2 (EN/PL)	Complementary VI- History of Modern World, (1921-1945),For English & Political Science	3	3
		Total	25	21
IV	EN 1411	Language Course VIII ( English V)	5	4
	M/H 1411	Language Course IX (Addl. Language IV)	5	4
	HY1441	Core IV- Medieval India: Socio-Cultural Processes.	5	4
	HY1442		4	3
	HY 1431.1 (EC/IH/SG)	Core V-History Modern World – Part I Complementary VII-History of Modern India (after1948), For Economics, Islamic History and Sociology	3	3
	HY 1431.2 (EN/PL)	Complementary VIII- History of Modern World, (after1946), For English & Political Science	3	3
			Total	25

HY1541  
 HY1542  
  
 HY1543  
 HY1544  
 HY1545  
  
 HY 1551.1  
 HY 1551.2  
 HY1551.3  
  
  
  
 HY1641  
 HY 1642  
  
 HY1643  
 HY1644  
  
 HY1661.1  
 HY1661.2  
 HY 1661.3  
 HY1661.4  
 HY1661.5  
 HY1661.6  
 HY1661.7  
  
 HY1645

STR: RS	NO. CRE
	4
	3
	2
	4
	2
	2
	17
	4
	3
	3
	4
	3
	3
	3
	20
	4
	4
	3
	4
	3
	3
	3
	21
	4
	4
	4
	3
	3
	3
	21

HY1541	Core VI-Major trends in Historical thoughts and writings RJ	4	4
HY1542	Core VII-Colonialism and Resistance movements in India S N S	4	4
HY1543	Core VIII-History of Modern World - Part II RJ	3	2
HY1544	Core IX-History of Pre- Modern Kerala RJ + Rev P	4	4
HY1545	Core X-Making of Indian Nation S V S	3	2
HY 1551.1	<b>Open Courses-</b>		
HY 1551.2	Empowerment of Women with special reference to India Rev P	3	2
HY1551.3	An Introduction to Archaeology		
	History of Human Rights Movement.	3	0
	Project/Dissertation		
	Historical Method-Mechanics Project Writing		
	Study Tour		
	Total	25	20
HY1641	Core XI - Making of Modern Kerala	5	4
HY 1642	Core XII - Major trends in Indian Historical thought & writings	5	4
HY1643	Core XIII - Contemporary India	5	4
HY1644	Core XIV - Twentieth Century Revolutions	4	3
	<b>Electives</b>		
HY1661.1	Historical Tourism	3	2
HY1661.2	Heritage Studies		
HY 1661.3	Contemporary World		
HY1661.4	Empowerment of Women with special reference to India		
HY1661.5	An Introduction to Archaeology		
HY1661.6	History of Human Rights Movement.		
HY1661.7	Environmental History of Modern India		
HY1645	Project/Dissertation	3	4
	Total	25	21
	Grand Total	150	120

## Study Tour

A compulsory study tour programme to historically important sites is introduced during the fifth Semester. The rules & regulations for the study tour are as per government order (Directorate of Collegiate Education). The students have to submit a detailed report of the same, instead of Assignment/Seminar for the Core course- HY 1554-History of Pre-Modern Kerala.

### Pattern of Question Papers (2013 Admission onwards)

Question Type	Total number of Questions	Number of Questions to be answered	Marks for each Questions	Total Marks
Very short answer type(One word to Maximum of two sentences) [1 to10]	10	10	1	(10x10) 10
Short answer(Not To exceed one Paragraph [11to22])	12	8	2	(8x2) 16
Short essay(Not to exceed 120 words) [23 to 31]	9	6	4	( 6x4) 24
Long essay[32-35]	4	2	15	(2x15) 30
<b>Total</b>	<b>35</b>	<b>26</b>		<b>80</b>

HY-1641

Core-XI

Credits-4

Semester-VI

Hours-5

### MAKING OF MODERN KERALA

#### MODULE-1

#### COLONIAL EXPERIENCE

Advent of the Colonial powers- The Portuguese, Dutch, French and English. Impact of their intervention on Kerala society.

The Rise of the British Power- Nature of early Resistance movements- Revolt of Pazhassi Raja, Velu Thampi and Paliyath Achan- Kurichya Revolt

#### MODULE-2

#### TOWARDS MODERN ERA

Christian Missionaries and their role in the spread of education-Role of press- Upper cloth Rebellion - Kallumala Agitation- Social reform movements- Temple Entry Movement - Role

of Caste  
and Kut

MODU

AGITA

Early pr  
rights -

Cochin  
Struggle

MODU

POST I

Formati  
reforms

MODU

DEBAT

Future I

Essenti

1. P. N

2. P. C

Pub

3. K. M

4. Lite

198.

5. Plar

,Ne

6. Para

200

7. Pan

Boc

8. A. S

9. B. S

10. B. S

soci

11. Elar

12. K. I

13. K. I

14. K.

Dev

15. M.

197

16. K.

Stu

17. P.S

18. P.K

19. P.

Tri

20. R. I

free

# **UNIVERSITY OF KERALA**

## **FACULTY OF COMMERCE**

### **Scheme and syllabus for the First Degree Programme in Commerce**

**Under the Choice Based Credit and Semester System (CBCSS)**

**(To be introduced from 2018 admissions)**



### General Structure for the First Degree Programme in Commerce

Sem No.	Courses	Instructional Hours Per Week	Credits	Uty Exam Duration (Hours)	Evaluation		To cre
					Internal	End Semester Exam	
SEMESTER I	Language Course I (English I)	5	4	3	20%	80%	
	Language Course II (Addl. Language I)	4	4	3	20%	80%	
	Foundation Course I	4	2	3	20%	80%	
	Core Course I	4	3	3	20%	80%	
	Core Course II	4	3	3	20%	80%	
	Complementary Course I	4	3	3	20%	80%	
SEMESTER II	Language Course III (English II)	5	4	3	20%	80%	20
	Language Course IV (Addl. Language II)	4	4	3	20%	80%	
	Foundation Course II	4	3	3	20%	80%	
	Core Course III	4	3	3	20%	80%	
	Core Course IV	4	3	3	20%	80%	
	Complementary Course II	4	3	3	20%	80%	
SEMESTER III	Language Course V (English III)	3	3	3	20%	80%	20
	Core Course V	4	3	3	20%	80%	
	Core Course VI	4	3	3	20%	80%	
	Core Course VII	5	4	3	20%	80%	
	Elective Course I	5	4	3	20%	80%	
	Complementary Course III	4	3	3	20%	80%	
SEMESTER IV	Language Course VI (English IV)	3	3	3	20%	80%	
	Core Course VIII	4	3	3	20%	80%	
	Core Course IX	4	4	3	20%	80%	
	Core Course X	5	4	3	20%	80%	
	Elective Course II	5	4	3	20%	80%	
	Complementary Course IV	4	3	3	20%	80%	
SEMESTER V	Core Course XI	4	4	3	20%	80%	
	Core Course XII	5	4	3	20%	80%	
	Core Course XIII	5	4	3	20%	80%	
	Open Course I	3	2	3	20%	80%	
	Elective Course III	5	4	3	20%	80%	
	Project	3	-	-	20%	80%	
SEMESTER VI	Core Course XIV	4	4	3	20%	80%	
	Core Course XV	5	4	3	20%	80%	
	Core Course XVI	5	4	3	20%	80%	
	Open Course II	3	2	3	20%	80%	
	Elective Course IV	5	4	3	20%	80%	

## PROGRAMME STRUCTURE

## SEMESTER - I

Courses	Course Code	Course Title	Instructional Hours Per Week		End Semester Exam Hours		Credit
			Theory	Practical	Theory	Practical	
Language Course I	EN 1111	English I	5	-	3	-	4
Language Course II	1111	Additional Language I	4	-	3	-	4
Foundation Course I	CO 1121	Methodology and Perspectives of Business Education	4	-	3	-	2
Core Course I	CO 1141	Environmental studies	4	-	3	-	3
Core Course II	CO 1142	Management Concepts and Thoughts	4	-	3	-	3
Complementary Course I	CO 1131	Managerial Economics ✓	4	-	3	-	3
		Total	25				19

## SEMESTER II

Courses	Course Code	Course Title	Instructional Hours Per Week		End Semester Exam Hours		Credit
			Theory	Practical	Theory	Practical	
Language Course III	EN 1211	English II	5	-	3	-	4
Language Course IV	1211	Additional Language II	4	-	3	-	4
Foundation Course II	CO 1221	Informatics and Cyber Laws	4	-	3	-	3
Core Course III	CO 1241	Financial Accounting	4	-	3	-	3
Core Course IV	CO 1242	Business Regulatory Framework	4	-	3	-	3
Complementary Course II	CO 1231	Business Mathematics ✓	4	-	3	-	3
		Total	25				20

## SEMESTER - III

Courses	Course Code	Course Title	Instructional Hours Per Week		End Semester Exam Hours		Credit
			Theory	Practical	Theory	Practical	
Language Course V	EN 1311	English III	3	-	3	-	3
Core Course V	CO 1341	Entrepreneurship Development	4	-	3	-	3
Core Course VI	CO 1342	Advanced Financial Accounting	5	-	3	-	4
Core Course VII	CO 1343	Company Administration	4	-	3	-	3
Elective Course I	CO 1361	Elective stream 1/2/3/4/5	5(1)	(4)	3	(1 5)	4
Complementary Course III	CO 1331	E-Business ✓	4	-	3	-	3
		Total	25(21)	(4)			20

Figures in brackets are applicable only for computer application stream

## SEMESTER IV

Courses	Course Code	Course Title	Instructional Hours Per Week		End Semester Exam Hours	
			Theory	Practical	Theory	Practical
Language Course VI	EN 1411	English IV	3	-	3	-
Core Course VIII	CO 1441	Indian Financial Markets	4	-	3	-
Core Course IX	CO 1442	Banking and Insurance	4	-	3	-
Core Course X	CO 1443	Corporate Accounting	5	-	3	-
Elective Course II	CO 1461	Elective stream 1/2/3/4/5	5(1)	(4)	3	(1.5)
Complementary Course IV	CO 1431	Business Statistics	4	-	3	-
		Total	25(21)	(4)		

Figures in brackets are applicable only for computer application stream

## SEMESTER V

Courses	Course Code	Course Title	Instructional Hours Per Week		End Semester Exam Hours	
			Theory	Practical	Theory	Practical
Core Course XI	CO 1541	Fundamentals of Income Tax	5	-	3	-
Core Course XII	CO 1542	Cost Accounting	5	-	3	-
Core Course XIII	CO 1543	Marketing Management	4	-	3	-
Open Course I	CO 1551	Open Course - 1/2/3	3	-	3	-
Elective Course III	CO 1561	Elective stream 1/2/3/4/5	5(1)	(4)	3	(1.5)
Project	-	Project	3	-	-	-
		Total	25(21)	(4)		

Figures in brackets are applicable only for computer application stream

## SEMESTER VI

Courses	Course Code	Course Title	Instructional Hours Per Week		End Semester Exam Hours	
			Theory	Practical	Theory	Practical
Core Course XIV	CO 1641	Auditing <sup>4</sup>	4	-	3	-
Core Course XV	CO 1642	Applied Costing <sup>4</sup>	5	-	3	-
Core Course XVI	CO 1643	Management Accounting <sup>4</sup>	5	-	3	-
Open Course II	CO 1651	Open Course - 1/2/3 <sup>2</sup>	3	-	3	-
Elective Course IV	CO 1661	Elective stream 1/2/3/4/5 <sup>4</sup>	5(1)	(4)	3	(1.5)
Project	CO 1644	Project <sup>4</sup>	3	-	-	-
		Total	25(21)	(4)		
		Grand Total (SI+SII+SIII+SIV+SV+SVI)				

Figures in brackets are applicable only for computer application stream

## ELECTIVE STREAMS

## 1. FINANCE

Semester	Course Code	Course Title
III	CO 1361.1	Financial Management
IV	CO1461.1	Project Finance
V	CO 1561.1	Financial Services in India
VI	CO 1661.1	Taxation Laws and Accounts

## 2. CO-OPERATION

Semester	Course Code	Course Title
III	CO 1361.2	Principles of Co-operation
IV	CO1461.2	Co-operative Management and Administration
V	CO 1561.2	Co-operative Legal System
VI	CO 1661.2	Co-operative Accounting

## 3. TRAVEL AND TOURISM

Semester	Course Code	Course Title
III	CO 1361.3	Tourism: Principles and Practice
IV	CO1461.3	Tourism Products
V	CO 1561.3	Hospitality Management
VI	CO 1661.3	Travel Agency, Tour operation and Airline Management

## 4. INSURANCE AND BANKING

Semester	Course Code	Course Title
III	CO 1361.4	Principles and Practice of Life Insurance
IV	CO1461.4	Principles and Practice of General Insurance
V	CO 1561.4	Indian Banking System
VI	CO 1661.4	Practical Banking

## 5. COMPUTER APPLICATION

Semester	Course Code	Course Title
III	CO 1361.5	Computer Application for Publication
IV	CO1461.5	Software for Data Management
V	CO 1561.5	Web Designing and Production for Business
VI	CO 1661.5	Computerised Accounting

## OPEN COURSES

Semester	Course Code	Course Title
V (for students from disciplines other than Commerce)	CO 1551.1	Fundamentals of Financial Accounting
	CO 1551.2	Principles of Management
	CO 1551.3	Capital Market Operations
VI (for students from the Department of Commerce)	CO 1651.1	Practical Accounting
	CO 1651.2	Management of Foreign Trade
	CO 1651.3	Strategic Management

**Notes:**

- Each candidate has to choose an elective stream which contains four courses, one in the third, fourth, fifth and sixth semesters.
- The open course offered in the fifth semester is an elective course for students from Disciplines other than Commerce. He/ She can choose any one among the courses in that group as part of his/ her course of study.
- The open course offered in the sixth semester is an elective course for students from the Department of Commerce and each student has to choose any one among the courses in that group as part of his/ her course of study.
- Of the five instructional hours per week allotted to the elective stream Computer Applications, 1 hour per week shall be for theory and 4 hours per week shall be for practical. The records shall be prepared, duly certified by the teacher concerned and countersigned by the Head of the Department shall be produced at the time of practical examination as per the syllabus. Of the 4 credits given to each of the Computer Application courses in the third, fourth, fifth and sixth semesters, 2 credits shall be for theory and 2 credits shall be for practical. The maximum marks for evaluation of the practical examination shall be 80 marks, distributed as follows among the following components of evaluation:

(i) Output of the Practical	-	50
(ii) Practical Record	-	15
(iii) Viva-voce	-	15

All courses included under Foundation Courses, Core Courses, Complementary Courses, Open and Elective Courses shall be handled by teachers in Commerce.

**V. Practical Sessions**

Practical sessions are included for all Core and Elective Courses of B.Com. Program. This shall be on a regular basis. The records shall be maintained for at least 10 years through the Department of Commerce. The records shall be maintained in the Department of Commerce.

PG

**UNIVERSITY OF KERALA**

**THIRUVANANTHAPURAM**

**M.Sc. Degree in Botany (Semester System)**

**Revised Course Structure & Syllabus**

**(w.e.f. 2019 Admissions)**

**October 2018**

**PG BOARD OF STUDIES IN BOTANY**

**UNIVERSITY OF KERALA**  
**M.Sc. Degree in Botany (Semester System)**

**Revised Course structure**

Semester	Paper Code	Title of the Paper	Hours/semester	Hours / week		ESA hours	Maximum Marks		
				L	P		CA	ESA	Total
I						3			
	BO 211	Phycology, Mycology, Microbiology & Plant Pathology	108	6	2	3	25	75	100
	BO212	Bryophyta, Pteridophyta & Gymnosperms	108	6	2	3	25	75	100
	BO213	Histology, Reproductive Biology, Microtechnique & Histochemistry	108	6	3	3	25	75	100
	BO214	Practical I	126		7	4	25*	75*	Δ
	<b>Total for Semester I</b>			<b>450</b>	<b>18</b>	<b>7</b>	<b>13</b>	<b>75</b>	<b>225</b>
II	BO 221	Taxonomy of Angiosperms, Economic Botany & Ethnobotany	108	6	2.5	3	25	75	100
	BO 222	Environmental Biology, Forest Botany, Phytogeography & Conservation Biology	108	6	2	3	25	75	100
	BO 223	Cell Biology, Genetics & Evolution	108	6	2.5	3	25	75	100
		Practical I							100*
	BO 224	Practical II	126		7	4	25	75	100
	BO 225	Submission I* (I A+1B)						25+25	50
<b>Total for Semester II</b>			<b>450</b>	<b>18</b>	<b>7</b>	<b>13</b>	<b>100</b>	<b>350</b>	<b>550</b>
III	BO 231	Plant Breeding, Horticulture & Biostatistics	108	6	1.5	3	25	75	100
	BO 232	Biochemistry, Plant Physiology & Research Methodology	108	6	3	3	25	75	100
	BO 233	Molecular Biology, Immunology & Plant Biotechnology	108	6	2.5	3	25	75	100
	BO 234	Practical III	126		7	4	25**	75**	Δ Δ
	<b>Total for Semester III</b>			<b>450</b>	<b>18</b>	<b>7</b>	<b>13</b>	<b>75</b>	<b>225</b>
IV	BO 241	Special Paper –I Bioinformatics & Biophysics	144	8	2	3	25	75	100
	BO 242	Special Paper –II Elective	144	8	5	3	25	75	100
		Practical III							100**
	BO 243	Practical IV	126		7	4	25	75	100
	BO 244	Dissertation	36	2				100	100
	BO 245	Submissions II**						50	50
	BO 246	Comprehensive Viva Voce					25	75	100
<b>Total for Semester IV</b>			<b>450</b>	<b>18</b>	<b>7</b>	<b>10</b>	<b>100</b>	<b>450</b>	<b>650</b>
<b>Grand Total</b>							<b>400</b>	<b>1400</b>	<b>1800</b>

L-Lecture, P-practical, ESA-End Semester Assessment, CA-Continuous Assessment (Internal)

Δ The S1 practical examination marks (25\*+75\*=100\*) will be awarded only during II semester practical Examinations.

Δ Δ The S3 practical examination mark (25\*\*+75\*\*=100\*\*) will be awarded only during IV semester practical Examinations.

\* Evaluation of the Submission 1(A) will be along with Practical I. Evaluation of the Submission 1(B) will be along with Practical II.

\*\* The evaluation of the Submission II will be along with the Viva Voce at the end of 4th Semester.



### SCHEDULE OF WORK LOAD

Semester	Paper code	Subject	Total hours		T Hours/week	P Hours/week
			T	P		
I	BO 211	Phycology	36	18	2	1
		Mycology	27	9	1.5	0.5
		Plant Pathology	18	0	1	0
		Microbiology	27	9	1.5	0.5
	BO 212	Bryophyta	27	9	1.5	0.5
		Pteridophyta	45	18	2.5	1
		Gymnosperms	36	9	2	0.5
	BO 213	Reproductive Biology	27	9	1.5	0.5
		Histology	36	9	2	0.5
Microtechnique & Histochemistry		45	36	2.5	2	
II	BO 221	Taxonomy of Angiosperms	90	36	5	2
		Economic botany	9	9	0.5	0.5
		Ethnobotany	9	0	0.5	0
	BO 222	Environmental Biology	54	36	3	2
		Forest Botany	9	0	0.5	0
		Phytogeography	18	0	1	0
		Conservation Biology	27	0	1.5	0
	BO 223	Cell Biology	36	18	2	1
		Genetics	54	27	3	1.5
Evolution		18	0	1	0	
III	BO 231	Plant Breeding	54	9	3	0.5
		Horticulture	18	9	1	0.5
		Biostatistics	36	9	2	0.5
	BO 232	Biochemistry	36	27	2	1.5
		Plant Physiology	54	27	3	1.5
		Research Methodology	18	0	1	0
	BO 233	Molecular Biology	36	9	2	0.5
		Immunology	18	0	1	0
IV	BO 241	Special Paper – I Bioinformatics & Biophysics	90	18	5	1
			54	18	3	1
	BO 242	Special paper – II Elective	144	90	8	5
	BO 244	Dissertation	36	-	2	-

#### Elective II Special Papers

BO 242a : Biotechnology

BO 242b : Environmental Biology

BO 242c : Plant Biochemistry and Enzymology

BO 242d : Cytogenetics

The special paper comprises detailed studies in certain areas of a subject. Normally a department shall offer one of the above subjects as special paper. There shall be provision for change of subject for special paper, if necessary, in the ensuing years.

### **Study Tour**

Study tour in the 2<sup>nd</sup> and 4<sup>th</sup> semesters of the PG programme is compulsory.

2<sup>nd</sup> Semester : minimum three one day field trips or 3 to 4 day study tour for flora awareness.

4<sup>th</sup> Semester : Visit to at least two regional and two national research institutions.

### **SUMBISSIONS**

#### **Submission I (Evaluation along with 2<sup>nd</sup> Semester Practical Examination)**

##### **Submission I (A)**

1. Algae/Fungi/Pathology – Five species representing at least one member from each group  
5x 2= 10 marks
  2. Bryophytes/ Pteridophytes/ Gymnosperms- Three species from each group  
5x3=15 marks
- Total = 25 marks**

Submissions can be either as herbarium or as preserved specimens.

Evaluation of the Submission 1(A) will be along with Practical I.

##### **Submission I (B)**

1. Herbarium of invasive species/Exotic species (5 numbers each) 10x1= 10 marks
2. Economic products/Ethnobotany (5 numbers- representation from both) 5x2= 10 marks
3. Tour Report 5 marks

**Total =25 marks**

Evaluation of the Submission 1(B) will be along with Practical II.

#### **Submission II (Evaluation along with 4<sup>th</sup> Semester Practical Examination)**

1. Detailed report on visit to any four National / Regional research institutions and the type of research works undertaken by these centers 10 marks
2. A model research proposal seeking fund to carry out research on a specific problem 20 marks
3. Power Point presentation of the dissertation carried out by the student before the examiner 20 marks

**Total = 50 marks**

The evaluation of the Submission II will be along with the Viva Voce at the end of 4<sup>th</sup> Semester.

Topic of the dissertation may be chosen from any area of botany and may be laboratory based, field based or both or computational, with emphasis on originality of approach. It may be started during 2<sup>nd</sup>/3<sup>rd</sup> semester and shall be completed by the end of the 4<sup>th</sup> semester. It should be duly signed by the research guide and the head of the Department and submitted for evaluation. The dissertation to be submitted should include:

- Introduction
- Objectives of the study
- Materials and methods
- Results and discussion
- Summary and conclusion
- References



## UNIVERSITY OF KERALA

### Syllabus for M. Sc. Programme in Branch III CHEMISTRY

**(Revised Syllabi under Semester System  
with effect from 2020 Admissions)**

CH 214	Inorganic Chemistry Practicals II		3	6	25	75	100
CH 215	Organic Chemistry Practicals II		3	6	25	75	100
CH 216	Physical Chemistry Practicals II		4	6	25	75	100
<b>Total marks for Semester II</b>							<b>600</b>
*Distribution of teaching hours/week: Theory–15 hours, Practical's –10 hours							
<b>SEMESTER III*</b>							
CH 231	Inorganic Chemistry III	5		3	25	75	100
CH 232	Organic Chemistry III	5		3	25	75	100
CH 233	Physical Chemistry III	5		3	25	75	100
CH 234	Inorganic Chemistry Practicals II		3	(To be continued in Semester IV)			
CH 235	Organic Chemistry Practicals II		3	(To be continued in Semester IV)			
CH 236	Physical Chemistry Practicals II		4	(To be continued in Semester IV)			
<b>Total marks for Semester III</b>							<b>300</b>
*Distribution of teaching hours/week: Theory–15 hours, Practical's –10 hours							
<b>SEMESTER IV*</b>							
CH 241	Chemistry of Advanced Materials (Elective)	5		3	25	75	100
CH 242 (a)	Inorganic Chemistry IV	5		3	25	75	100
CH 242 (b)	Organic Chemistry IV						
CH 242 (c)	Physical Chemistry IV						
CH 234	Inorganic Chemistry Practicals II		3	6	25	75	100
CH 235	Organic Chemistry Practicals II		3	6	25	75	100
CH 236	Physical Chemistry Practicals II		4	6	25	75	100
CH 243 (a)	Dissertation**					50	50
CH 243 (b)	Visit to R&D Centre					5	5
Comprehensive viva-voce						45	45
<b>Total marks for Semester IV</b>							<b>600</b>
<b>Grand Total (for semesters I – IV)</b>							<b>1800</b>
*Distribution of teaching hours/week: Theory–10 hours, Practical's –10 hours , 5 hours for discussion on project							

\*\* 10 marks out of the 50 marks for dissertation will be for dissertation viva-voce. The remaining 40 marks is to be distributed as follows  
 Introduction to the work/ Statement of the Problem – 5, Review of Literature – 5  
 Materials and Methods – 5, Results and Discussion – 15, Language and style of presentation – 2, References – 3, Quality and Innovation – 5.

16/10/18

# **UNIVERSITY OF KERALA**

**Revised Syllabus for**

**M. Sc. Degree Programme in Physics**

**(With effect from 2018 admissions)**

# UNIVERSITY OF KERALA

M.Sc Degree Programme (effective from 2018 - 19)  
Branch II PHYSICS

## A: COURSE STRUCTURE & MARK DISTRIBUTION

Semester	Paper Code	Title of Paper	Contact hours per week			UE duration (hrs)	Maximum mark		
			L	T	P		IA	UE	Total
<b>I</b>	PH 211	Classical Mechanics	6	1	...	3	25	75	100
	PH 212	Mathematical Physics	6	1	...	3	25	75	100
	PH 213	Basic Electronics	6	1	...	3	25	75	100
	PH 251	General Physics Practicals	...	1	3	...	...	...	...
	PH 252	Electronics & Computer Science Practicals	...	1	4	...	...	...	...
	<b>Total for Semester I (S1)</b>			18	5	7	...	75	225
<b>II</b>	PH 221	Modern Optics & Electromagnetic theory	6	1	...	3	25	75	100
	PH 222	Thermodynamics, Statistical Physics & Basic Quantum Mechanics	6	1	...	3	25	75	100
	PH 223	Computer Science & Numerical Techniques	6	1	...	3	25	75	100
	PH 251	General Physics Practicals	...	1	3	6	25	75*	100
	PH 252	Electronics & Computer Science Practicals	...	1	4	6	25	75*	100
	<b>Total for Semester II (S2)</b>			18	5	7	...	125	375

III	PH 231	Advanced Quantum Mechanics	6	1	...	3	25	75	100
	PH 232	Advanced Spectroscopy	6	1	...	3	25	75	100
	PH 233 X	Special Paper I	6	1	...	3	25	75	100
	PH 261	Advanced Physics Practicals	...	1	4	...	...	...	...
	PH 262	Advanced Electronics Practicals	...	1	3	...	...	...	...
	<b>Total for Semester III (S3)</b>			18	5	7	...	75	225
IV	PH 241	Condensed Matter Physics	6	1	...	3	25	75	100
	PH 242	Nuclear & Particle Physics	6	1	...	3	25	75	100
	PH 243 X	Special Paper II	6	1	...	3	25	75	100
	PH 261	Advanced Physics Practicals	...	1	3	6	25	75*	100
	PH 262	Advanced Electronics Practicals	...	...	4	6	25	75*	100
	PH 201	Project	...	...	...	...	25	75	100
	PH 202	Viva Voce	...	...	...	...	...	100	100
	<b>Total for Semester IV (S4)</b>			18	5	7	...	150	550
<b>Grand Total</b>			72	20	28	...	425	1375	1800

\* 10 marks for records

L - Lecture IA - Internal Assessment,

T - Tutorial UE - University Exam

P - Practical

X: E (Electronics), M (Materials Science)

N (Nuclear Physics), S (Space Physics)

T (Theoretical Physics)