



Solapur University, Solapur

Faculty of Science

**B.Sc.Part- I Microbiology
Syllabus**

**Choice Based Credit System (CBCS)
(W.e.f. June, 2016)**

Solapur University, Solapur

Faculty of Science

Choice Based Credit System (CBCS)

(W.e.f. June 2016)

- **Choice Based Credit System:** With the view to ensure worldwide recognition, acceptability, horizontal as well as vertical mobility for students completing undergraduate degree, Solapur University has implemented Choice Based Credit System (CBCS) at Undergraduate level.

The CBCS provides an opportunity for the students to choose courses from the prescribed courses comprising core, elective/minor or skill based courses. The courses can be evaluated following the grading system, which is considered to be better than the conventional marks system. Therefore, it is necessary to introduce uniform grading system in the entire higher education in India. This will benefit the students to move across institutions within India to begin with and across countries. The uniform grading system will also enable potential employers in assessing the performance of the candidates. In order to bring uniformity in evaluation system and computation of the Cumulative Grade Point Average (CGPA) based on student's performance in examinations.

- **Outline of Choice Based Credit System:**
 1. **Core Course:** A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course.
 2. **Elective Course:** Generally a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline/subject of study or which provides an extended scope or which enables an exposure to some other discipline/subject/domain or nurtures the candidate's proficiency/skill is called an Elective Course.

Discipline Specific Elective (DSE) Course: Elective courses may be offered by the main discipline/subject of study is referred to as Discipline Specific Elective.
 3. **Ability Enhancement Courses (AEC):** The Ability Enhancement (AE) Courses may be of two kinds: Ability Enhancement Compulsory Courses (AECC) and Skill Enhancement Courses (SEC). "AECC" courses are the courses based upon the content that leads to Knowledge enhancement; (i) Environmental Science and (ii) English/MIL Communication. These are mandatory for all disciplines. SEC courses are value-based and/or skill-based and are aimed at providing hands-on-training, competencies, skills, etc.

- **Credit:** Credit is a numerical value that indicates students work load (Lectures, Lab work, Seminar, Tutorials, Field work etc.) to complete a course unit. In most of the universities 15 contact hours constitute one credit. The contact hours are transformed into credits.

Moreover, the grading system of evaluation is introduced for B.Sc. course wherein process of Continuous Internal Evaluation is ensured. The candidate has to appear for Internal Evaluation of 30 marks and University Evaluation for 70 marks. It is 70+30 pattern of evaluation. It is applicable for theory and practical as well. The details regarding this evaluation system are as under.

- **Conversion of marks into Grades:**

A table for the conversion of the marks obtained by a student in each paper (out of 100) to grade and grade point is as given below:

Sr. No.	Range of Marks	Grade	Grade Point
1	80 – 100	O	10
2	70 – 79	A+	9
3	60 – 69	A	8
4	55 – 59	B+	7
5	50 – 54	B	6
6	45 – 49	C+	5
7	40 – 44	C	4
8	<39	FC	0 (Failed in Term Exam)
9	<39	FR	0 (Failed in Internal Assessment)

1. Grade Point Average at the end of the Semester (SGPA)

$$SGPA = \frac{(G_1 \times C_1) + (G_2 \times C_2) + \dots \dots \dots}{\sum C_i}$$

($\sum C_i$ = the total number of credits offered by the student during a semester)

2. Cumulative Grade Point Average (CGPA)

$$CGPA = \frac{(G_1 \times C_1) + (G_2 \times C_2) + \dots \dots \dots}{\sum C_i}$$

($\sum C_i$ = the total number of credits offered by the student upto and including the semester for which CGPA is calculated.)

3. Final Grade Point Average (FGPA)

It will be calculated in the similar manner for the total number of credits offered for the completion of the said course.

Where: C_i = Credits allocated for the i^{th} course.

G_i = Grade point scored in the i^{th} paper (subject)

4. Conversion of average grade points into grades:

SGPA/CGPA/FGPA	Letter Grade
9.5 – 10	O
8.5 – 9.49	A+
7.5 – 8.49	A
6.5 – 7.49	B+
5.5 – 6.49	B
4.5 – 5.49	C+
4.0 – 4.49	C
<3.99	FC / F
	FR

- **General guidelines for syllabus Structure:**

- The University follows semester system.
- An academic year shall consist of two semesters.
- Each B.Sc. course shall consist of three years i.e. six semesters.
- B.Sc. Part-I Microbiology shall consist of two semesters: Semester I and Semester II.

In semester I, there will be two core papers. Each paper is having of 100 marks. Similarly in Semester II there will be two core papers. Each paper has 100 marks weightage. English will be as Ability Enhancement Course (AECC) in both Semester I and II. English paper carries 100 marks in each semester.

The scheme of evaluation of performance of candidates shall be based on University assessment as well as College internal assessment as given below. For B.Sc. Part-I Microbiology semester I & II the internal assessment will be based on Internal tests, Home assignment, Tutorials, Seminars, Group discussion, Brain storming sessions etc. as given below. Practical course examination is of 100 marks shall be conducted at the end of II semester. The practical examination of 100 marks shall also consist of 70 marks for University practical assessment and 30 marks for college internal assessment.

For University practical examination out of two examiners, one examiner will be internal and another examiner will be External. Both examiners will be appointed by the University. The internal practical assessment shall be done as per scheme given below.

- **Scheme of Evaluation**

As per the norms of the grading system of evaluation, out of 100 marks, the candidate has to appear for college internal assessment of 30 marks and external evaluation (University assessment) of 70 marks.

Semester – I

Theory: (100 marks)

University Examination (70 marks): No. of theory papers: 2

Internal Continuous Assessment: (30 marks)

Scheme of marking: 15 marks – Internal test

15 marks – Home assignment / tutorials / seminars / viva/

Semester – II

Theory: (100 marks)

University Examination (70 marks): No. of theory papers: 2

Internal Continuous Assessment: (30 marks)

Scheme of marking: 15 marks – Internal test

15 marks – Home assignment / tutorials / seminars / viva/

Practical Examination: (100 marks)

University Examination (70 marks): No. of practical course: 1

Internal Continuous Assessment: (30 marks)

Scheme of marking: 20 marks – Internal test on any two practicals

10 marks – Lab Journal / Viva/attendance, / attitude/sincerity/
field Visits etc.

- **Passing Standard**

The student has to secure a minimum of 4.0 grade points (Grade C) in each paper. A student who secure less than 4.0 grade point (39% or less marks, Grade FC/FR) will be declared fail in that paper and shall be required to reappear for respective paper. A student who failed in University Examination (theory) and passed in internal assessment of a same paper shall be given FC Grade. Such student will have to reappear for University Examination only. A student who fails in internal assessment and passed in University examination (theory) shall be given FR Grade. Such student will have to reappear for both University examination as well as internal assessment. In case of Annual pattern/old semester pattern students/candidates from the mark scheme the candidates shall appear for the same 70 marks of external examination and his performance shall be scaled to 100 marks.

- **ATKT**

Candidate passed in all papers, except 5 (five) papers combined together of semester I and II of B.Sc. Part-I Microbiology examination shall be permitted to enter upon the course of Semester III of B.Sc. Part-II Microbiology .

Choice Based Credit System (CBCS)

(W.e.f.2016-17)

Structure for B. Sc-I Microbiology

Subject/ Core Course	Name and Type of the Paper		No. of papers/ Practical	Hrs/week			Total Marks Per Paper	UA	CA	Credits
	Type	Name		L	T	P				
Class : B.Sc.- I Semester - I										
	Ability Enhancement Course(AECC)	English Paper I (communication skill)		4			100	70	30	4
	Core	Subject 1	Paper I	2.5	--	--	100	70	30	2.5
			Paper II	2.5	--	--	100	70	30	2.5
	Core	Subject 2	Paper I	2.5	--	--	100	70	30	2.5
			Paper II	2.5	--	--	100	70	30	2.5
	Core	Subject 3	Paper I	2.5	--	--	100	70	30	2.5
			Paper II	2.5	--	--	100	70	30	2.5
	Core	MICROBIOLOGY 4	Paper I	2.5	--	--	100	70	30	2.5
			Paper II	2.5	--	--	100	70	30	2.5
Total				24	--	--	900	630	270	24
Class : B.Sc.- I Semester - II										
	Ability Enhancement Course(AECC)	English Paper I (communication skill)		4			100	70	30	4
	Core	Subject 1	Paper III	2.5	--	--	100	70	30	2.5
			Paper IV	2.5	--	--	100	70	30	2.5
	Core	Subject 2	Paper III	2.5	--	--	100	70	30	2.5
			Paper IV	2.5	--	--	100	70	30	2.5
	Core	Subject 3	Paper III	2.5	--	--	100	70	30	2.5
			Paper IV	2.5	--	--	100	70	30	2.5
	Core	MICROBIOLOGY 4	Paper III	2.5	--	--	100	70	30	2.5
			Paper IV	2.5	--	--	100	70	30	2.5
Total (Theory)				24	--	--	900	630	270	24
	Core	Subject 1	Practical I	--	--	4	100	70	30	4
	Core	Subject 2	Practical I	--	--	4	100	70	30	4
	Core	Subject 3	Practical I	--	--	4	100	70	30	4
	Core	MICROBIOLOGY 4	Practical I	--	--	4	100	70	30	4
Total (Pract.)						16	400	280	120	16
Grand Total				24		16	1300	910	390	40

Abbreviations:

L: Lectures; T: Tutorials; P: Practicals; UA: University Assessment; CA: College Assessment

Choice-Based Credit System (CBCS) Structure for B.Sc.I Semester-I, Microbiology

Class	Sem	Subject	No. of Papers/ Practicals	Hrs/Week			Paper Mark s	UA	CA	Credits
				L	T	P				
B.Sc.I	I	English (Ability Enhancement Course- AECC)	English paper I - Communication Skills (compulsory)	4	-	-	100	70	30	4
		Microbiology	Paper I Introduction to Microbiology and Microbial Diversity	2.5	-	-	100	70	30	2.5
B.Sc.I	I	Microbiology	Paper II Microbial Techniques	2.5	-	-	100	70	30	2.5
Total				9			200			Credits : 9 (Sem I)

Choice-Based Credit System (CBCS) Structure for B.Sc.I Semester-II, Microbiology

Class	Sem	Subject	No. of Papers/ Practicals	Hrs/Week			Paper Mark s	Practical		Credits		
				L	T	P		UA	CA			
B.Sc. I	II	English (Ability Enhancement Course-AECC)	English paper II - Communication Skills	4	-	-	100	70	30	4		
	II	Microbiology	Paper III Microbial Biochemistry and Physiology	2.5	-	-	100	70	30	2.5		
	II	Microbiology	Paper-IV Applied Microbiology	2.5			100	70	30	2.5		
		Practical Microbiology		-	-	4			100	70	30	4
Total											Credits : 13 (Sem II)	

Abbreviations: L: lectures, T: Tutorials, P: Practicals; UA: University Assessment by End Semester Examination; CA: College assessment by Internal Continuous Examination UA (University Assessment): University Theory paper shall be of 70 marks for 3.00 hrs duration CA (College Assessment): The internal examination for theory and Practical course.

B.Sc.I Semester-I & II, MICROBIOLOGY Choice Based Credit System (CBCS) Structure

Semester- I (Theory)

Paper	Title of the paper: I & II	M arks
I	Introduction to Microbiology and Microbial Diversity	100(70UA + 30 CA)
II	Microbial Techniques	100(70UA + 30 CA)

Semester-II (Theory)

Paper	Title of the paper: III & VI	M arks
III	Microbial Biochemistry and Physiology	100 (70UA + 30 CA)
VI	Applied Microbiology	100 (70UA + 30 CA)

PRACTICAL TO BE TAKEN AT THE END OF SEMESTER-II

Practical	Title of the practical	M arks
I	Practical Based on Theory Papers I,II,III & IV	100 (70UA + 30 CA)

SOLAPUR UNIVERSITY, SOLAPUR
SYLLABUS FOR B.Sc – I (MICROBIOLOGY)
(C.B.C.S)
THEORY
SEMESTER I

PAPER –I (Introduction to Microbiology and Microbial diversity)

Total Contact hrs: 45

Total credits 2.5

UNIT –I: History of Development of Microbiology (10)

- Development of microbiology as a discipline, Spontaneous generation vs. biogenesis.
- Contributions of Antony von Leeuwenhoek, Louis Pasteur, Robert Koch, Joseph Lister, Alexander Fleming, John Tyndall
- Role of microorganisms in fermentation, Germ theory of disease, Development of various microbiological techniques and golden era of microbiology, Development of the field of soil microbiology: Contributions of Martinus W. Beijerinck, Sergei N. Winogradsky,.

UNIT –II: Diversity of microbial world (08)

A) Taxonomy, Morphology & Cytology of Bacteria

I) Bacterial Taxonomy:-

1. General principles of Bacterial nomenclature
2. Criteria for bacterial classification – Morphological, Cultural and Biochemical Characters

II) Difference between Prokaryotic & Eukaryotic cell.

UNIT III: General characters of different groups of microorganisms – Cellular & cellular. (20)

1. Cellular – Morphology, cytology of bacteria-
 - a) Size, Shape, arrangement of bacteria
 - b) Structure of typical Bacterial cell
 - c) Structure and function of Cell Wall, Cell Membrane, Capsule & Slime layer, and Flagella.
2. General characters, structure and economic importance of – Fungi, Archaeobacteria, Rickettsia and Actinomycetes, protozoa,.
3. Acellular- General characteristics, structure and economic importance of Viruses, viroids and prions.

UNIT – IV: An overview of Scope of Microbiology (07)

- a) Various branches of Microbiology
- b) Beneficial and Harmful activities of microorganisms

PAPER-II:
MICROBIAL TECHNIQUES

Total Contact hrs: 45
Total credits 2.5

Unit I Microscopy (08)

1. Principle, working of compound microscope, concept of magnification, Numerical aperture, Resolving power and working distance . Ray diagram.
2. Introduction to electron microscope.

Unit II Staining Techniques (10)

1. Definition of Stains and dyes.
2. Classification of stains – Acidic, Basic & Neutral with examples
3. Principle, procedure, mechanism and applications of following staining procedures
 - a) Simple
 - b) Negative
 - c) Differential: - Gram Staining , Acid fast staining.
4. Special staining methods
 - a) Cell wall: - Chance's Method
 - b) Capsule: - Maneval's method.

Unit III Sterilization Techniques (12)

1. Definitions: - Sterilization, Disinfection, Antiseptic, Germicide, Microbiostasis, Sanitization
2. Sterilization by Physical agents –
 - a) Temperature – Dry heat, moist heat, Desiccation
 - b) Osmotic Pressure
 - c) Radiation – U. V. rays and γ rays
 - d) Filtration – Asbestos , membrane Filtration.
3. Sterilization by chemical agents –
 - a) Phenol & Phenolic compounds
 - b) Ethyl alcohol
 - c) Halogens – Cl and Iodide.
 - d) Heavy Metals - Copper & Mercury,
 - e) Gaseous agents – Ethylene oxide, β -Propiolactone
Formaldehyde

UNIT-IV: Cultivation techniques of microorganisms (15)

A) Culture Media: -

1. In vivo -Living – Embryonated Egg, Animal Tissue Culture
2. In vitro – Non living media,- Natural, Synthetic, Semi synthetic,

Differential, Enriched, Selective

B) Methods of Pure culture: -

1. Streak Plate
2. Serial dilution: - Spread Plate and Pour Plate

C) Maintenance and preservation of pure cultures

**SEMESTER II
PAPER III**

(Microbial Biochemistry and Physiology)

Total Contact hrs: 45

Total credits 2.5

UNIT: - I Basic Biochemistry (12)

1) Structure & Functions of -

- a) Carbohydrates b) Proteins c) Lipids d) DNA e) RNA
- b)

UNIT- II- Microbial Enzymes (12)

- a) Definition, basic structure-apoenzyme, coenzymes, cofactors & prosthetic groups
- b) Types of Enzymes – Extra & Intracellular, Constitutive & Induced Enzymes – with example.
- c) Mechanism of action –active site, transition state and activation energy. Lock and key hypothesis, induced fit hypothesis.
- d) Factors affecting enzyme activity – Temperature, pH, Enzyme concentration, substrate concentration, activators, inhibitors.
- e) Classification of enzymes

**UNIT- III -
Microbial Metabolism:- (08)**

- a) Definition – Anabolism, Catabolism, Metabolism, and High energy compounds.
- b) Structure & energy content of ATP
- c) Catabolism of Glucose – EMP, TCA Cycle

UNIT- IV - Microbial Nutrition and Growth (13)

A) Microbial Nutrition

- a) Nutritional requirements of microorganisms
- b) Common components of media & their functions:-
Peptone, Meat extract, NaCl, Vitamins, Sugar, Na taurocholate, Milk, Starch, Blood, Agar-agar
- c) Common indicators & their functions:-Andrade's, Neutral Red, Bromothymol Blue
- d) Nutritional types of Microorganisms based on Carbon & Energy Source

B) Microbial Growth- Introduction, Definition and Growth phases of Bacteria

PAPER IV
Applied Microbiology

Total Contact hrs: 45
Total credits 2.5

UNIT -I- WATER MICROBIOLOGY (12)

- i) Sources of microorganisms in water
- ii) Fecal pollution of water & its indicator
- iii) Routine bacteriological analysis of water
 - Tests for coliforms – Qualitative (Presumptive, Confirmed & Completed)
 - Differentiation of coliforms – IMViC & Eijkman test
- iv) Quantitative – MPN
- iv) Municipal Water purification – Sedimentation, Filtration, Disinfection

UNIT II- SEWAGE MICROBIOLOGY (12)

Definition, Different types of sewage, Microbial flora, Definition of B.O.D and C.O.D, Treatment of sewage

UNIT III - MILK MICROBIOLOGY (06)

- a) Definition and Composition of Milk
- b) Sources of contamination
- c) Microbiological examination of Milk: -DMC, SPC , MBRT test
- d) Pasteurization –Definition and types of pasteurization, Phosphatase test.

UNIT – IV: MEDICAL MICROBIOLOGY (15)

A) Definitions:-

Infections, etiology, etiological agents, disease, pathogen, incubation period, fomite pathogenecity, virulence, morbidity rate, mortality rate, opportunistic pathogen, epidemiology, prophylaxis, carriers, host

B) Types of diseases:-

Epidemic, endemic, pandemic & sporadic

C) Types of infections:-

Primary, Secondary, acute, chronic, reinfection, cross infection, Mixed infection, congenital, local, and generalized

D) Methods of transmission of diseases –

1. Inoculation
2. Ingestion
3. Contact
4. Inhalation

E) Concepts of laboratory diagnosis

F) Prophylactic measures for microbial diseases

- a) Chemoprophylaxis

b) Immunoprophylaxis (Active & Passive)

Suggested reading

1. Tortora GJ, Funke BR and Case CL. (2008). Microbiology: An Introduction. 9th edition. Pearson Education
2. Madigan MT, Martinko JM, Dunlap PV and Clark DP. (2014). Brock Biology of Microorganisms. 14th edition. Pearson International Edition
3. Cappucino J and Sherman N. (2010). Microbiology: A Laboratory Manual. 9th edition. Pearson Education Limited
4. Wiley JM, Sherwood LM and Woolverton CJ. (2013) Prescott's Microbiology. 9th Edition. McGraw Hill International.
5. Atlas RM. (1997). Principles of Microbiology. 2nd edition. WM.T.Brown Publishers.
6. Pelczar MJ, Chan ECS and Krieg NR. (1993). Microbiology. 5th edition. McGraw Hill Book Company.
7. Stanier RY, Ingraham JL, Wheelis ML, and Painter PR. (2005). General Microbiology. 5th edition. McMillan.
8. General Microbiology Vol I and II –Pawar and Daginawala.

Practical Course

B.Sc. – I

Marks: 100

1. Good microbiology laboratory practices and Biosafety
2. Principle, working and applications of Common laboratory instruments
 - a) Autoclave
 - b) Hot Air Oven
 - c) Incubator
 - d) Colony Counter
 - e) Seitz filter
 - f) Laminar Air flow
3. Handling and Care of compound Microscope
4. Preparation of Saline and culture media
 - a) Peptone Water
 - b) Nutrient Broth
 - c) Nutrient agar
 - d) MacConkey's agar
 - e) Starch Agar
 - f) Milk agar,
 - g) Sabouraud's agar
5. Staining Procedures
 - (a) Monochrome
 - (b) Negative
 - (c) Gram
6. Special Staining Procedures
 - (a) Cell Wall (Chance's Method)
 - (b) Capsule (Maneval's Method)
7. Isolation of microorganisms from natural sources- soil, Water/Sewage by four quadrant method by studying Colony Characters, Gram Staining and Motility of
 - (a) *Bacillus Spp.*
 - (b) *Escherichia coli*
8. Microbial examination of milk
 - Standard plate count (SPC)(by spread plate)
 - MBRT
9. Mounting of Fungi
 - (a) *Aspergillus*
 - (b) *Rhizopus*

- (c) *Penicillium*
- (d) *Mucor*

10. Qualitative test of sugar and protein

Sugar- Benedict's
Protein- Biurette

11. Study of biochemical and enzymatic activity of microorganisms by

- (a) IMViC Test.
- (b) H₂S.
- (c) Glucose fermentation.
- (d) Amylase activity
- (e) Caseinase activity



Solapur University, Solapur
Faculty of Science
(New CBCS)
B.Sc. I Microbiology

Time: - 2 hrs 30 Minutes

Total Marks-70

Q. 1) Multiple choice questions

(14)

- i) -----
a) b) c) d)
- ii)
iii)
iv)
v)
vi)
vii)
viii)
ix)
x)
xi)
xii)
xiii)
xiv)

Q. 2) Attempt any seven (out of nine) of the following

(14)

- i)
ii)
iii)
iv)
v)
vi)
vii)
viii)
ix)

Q. 3 A) Attempt any two (out of three) of the following

(10)

- i)
ii)
iii)

B) Solve

(04)

Q. 4) Attempt any two (out of three) of the following

(14)

- i)
ii)
iii)

Q. 5) Attempt any two (out of three) of the following

(14)

- i)
ii)
iii)

The examination for Practical (70 marks) is conducted annually at the end of second term of academic year by university as per University Time Table.

B.Sc.Part I Microbiology

Practical Question Paper

Total Marks: 100 (70+30)

	Marks
Q.1 Staining Cell wall/ Capsule	15
Q.2) Isolation, Colony Characters, Gram Staining and Motility of <i>Bacillus spp/E.coli</i> Or Standard plate count of Milk	20
Q.3) Biochemical Test/ Enzymatic activity Indol/ Methyl Red/ Voges proskauer/ Citrate Utilization/ H ₂ S/ Amylase/ Caseinase/ Glucose fermentation/MBRT	10
Q.4) Qualitative test for protein /carbohydrate	10
Q.5) Spotting (A) Identify and give its Use (Microscope Part) (B) Identify and give Significance of Mounted Fungus (C) In which Staining Method it is used and give its significance (Stain) (D) In which Medium it is used and give its significance (Media Component) (E) In which Test it is used and give its significance (Indicator/Reagent)	10
Q.6) Journal	5
Internal practical examination	(30 marks)
Isolation by studying colony characters	15
Spotting	10
Viva,Journal,Attendance	05

1. Structure of the courses:-

A) For Science Faculty subjects, each theory paper shall be of 100 marks (70 marks University

assessment and 30marks College internal assessment) and practical examination to be held at

the end of SemII of each academic year for every Subject shall be of 100 Marks (70 marks

University assessment and 30marks College internal assessment) as resolved in the faculty and Academic Council.

B) The scheme for College Internal Assessment for both theory and practical component of 30

marks each shall be shall be as given in Table A and Table B respectively

2. Nature of question paper:

A) Nature of questions.

“10% Marks - objectives question” (One mark each and multiple choice questions)

“20% Marks - Short notes / Short answer type questions / Short Mathematical type questions/ Problems. (2 to 5 Marks each)

“40% Marks - Descriptive type questions / Long Mathematical type questions / Problems. (6 to 10 Marks each)

B) Objective type question will be of multiple choice (MCQ) with four alternatives. This answer book will be collected in first 15 minutes for 10 marks and in first 30 minutes for 20 marks. Each objective question will carry one mark each.

C) Questions on any topic may be set in any type of question. All questions should be set in such a way that there should be permutation and combination of questions on all topics from the syllabus. As far as possible it should cover entire syllabus.

D) There will be only five questions in the question paper. All questions will be compulsory. There will be internal option (30%) and not overall option. for questions 2 to 5.

3. Practical Examination for B. Sc. I. will be conducted at the end of second semester.

4. Examination fees for semester Examination will be decided in the Board of Examinations.

The structures of all courses in all Faculties were approved and placed before the Academic Council. After considered deliberations and discussion it was decided not to convene a

meeting of the Academic Council for the same matter as there is no deviation from any decision

taken by Faculties and Academic Council. Nature of Question Paper approved by Hon. Vice Chancellor on behalf of the Academic Council.

