ಮಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ
MANGALORE UNIVERSITY
(Accredited by NAAC with 'A' Grade)

ಕ್ರಮಾಂಕ/No. MU/ACC/CR14/CBCS-PG(SLB)/2016-17/A2

ಕುಲಸಚಿವರ ಕಚೇರಿ
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ಕರ್ನಾಟಕ, ಇಂಡಿಯ
Office of the Registrar
Mangalagangothri - 574 199
Karnataka, India

ದಿನಾಂಕ/Date : 27/2/2017

CIRCULAR

Sub: Change in title of paper No. 455 in the Syllabi of M.Sc. in Chemistry, Applied Chemistry, Organic Chemistry and Analytical Chemistry degree programmes.

Ref: 1) This office Notification No. MU/ACC/CR7/CBCS-PG(SLB)/ 2016-17/A2, dated: 17-8-2016.
2) Approval of PG BOS in Chemistry by circulation.
3) Academic Council approval dated: 3-2-2017.

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Pursuant to the above, the typographical error occurred in the title of the paper No. 455- Analytical and Green Chemistry of Second Semester M.Sc. in Chemistry, Applied Chemistry, Organic Chemistry and Analytical Chemistry degree programmes is corrected as "Chemistry of Biomolecules".

The corrected Scheme of Examination of I and II Semesters is enclosed and instructed to implement this change from the academic year 2016-17.

REGISTRAR 27/2

To:

1) The Chairman/ Co-ordinator of Chemistry/ Applied Chemistry/ Organic Chemistry/ Analytical Chemistry course, Mangalore University, Mangalagangothri/ Mangaluru/ Madikeri/ Chikka Aluvara.
2) The Principals of the colleges concerned.
3) The Chairman, PG BOS in Chemistry, Mangalore University.
4) The Registrar (Evaluation), Mangalore University.
5) The Asst. Registrar, (ACC), Mangalore University.
6) The Supdt. (ACC), O/o. the Registrar, Mangalore University.
7) Guard file.

MANGALORE UNIVERSITY

Consolidated Curse core and title
Programme: M.Sc. in Chemistry

1st Semester **2nd Semester**

Course Code	Course Title	Course Code	Course Title
CH H 401	Inorganic Chemistry	CH H 451	Advanced Inorganic Chemistry
CH H 402	Organic Chemistry	CH H 452	Advanced Organic Chemistry
CH H 403	Physical Chemistry	CH H 453	Advanced Physical Chemistry
CH S 404 Or CH S 405	Inorganic Spectroscopy and Analytical Techniques Or Environmental Chemistry	CH S 454 Or CH S 455	Organic Spectroscopic Techniques Or Chemistry of Bio-molecules
CH S 406	Molecular Spectroscopy and Diffraction Techniques	CH E 456	Environmental, Electro- and Polymer Chemistry
CH P 407	Inorganic Chemistry Practicals-1	CH P 457	Inorganic Chemistry Practicals-II
CH P 408	Organic Chemistry Practicals-1	CH P 458	Organic Chemistry Practicals-II
CH P 409	Physical Chemistry Practicals-1	CH P 459	Physical Chemistry Practicals-II

Programme: M.Sc. in Applied Chemistry

1st semester **2nd Semester**

Course Code	Course Title	Course Code	Course Title
AC H 401	Inorganic Chemistry	AC H 451	Advanced Inorganic Chemistry
AC H 402	Organic Chemistry	AC H 452	Advanced Organic Chemistry
AC H 403	Physical Chemistry	AC H 453	Advanced Physical Chemistry
AC S 404 Or AC S 405	Inorganic Spectroscopy and Analytical Techniques Or Environmental Chemistry	AC S 454 Or AC S 455	Organic Spectroscopic Techniques Or Chemistry of Bio-molecules
AC E 406	Molecular Spectroscopy and Diffraction Techniques	AC E 456	Environmental, Electro- and Polymer Chemistry
AC P 407	Inorganic Chemistry Practicals-1	AC P 457	Inorganic Chemistry Practicals-II

AC P 408	Organic Chemistry Practicals-1	AC P 458	Organic Chemistry Practicals-II
AC P 409	Physical Chemistry Practicals-1	AC P 459	Physical Chemistry Practicals-II

Programme : M.Sc. in ORGANIC CHEMISTRY

1st Semester **2nd Semester**

Course Code	Course Title	Course Code	Course Title
OC H 401	Inorganic Chemistry	OC H 451	Advanced Inorganic Chemistry
OC H 402	Organic Chemistry	OC H 452	Advanced Organic Chemistry
OC H 403	Physical Chemistry	OC 453H	Advanced Physical Chemistry
OH S 404 OC S 405	Inorganic Spectroscopy and Analytical Techniques Or Environmental Chemistry	OC S 454 Or OC 455	Organic Spectroscopic Techniques Or Chemistry of Bio-molecules
OC E 406	Molecular Spectroscoy and Diffraction Techniques	OC E 456	Environmental, Electro- and Polymer Chemistry
OC P 407	Inorganic Chemistry Practicals-I	OC P 457	Inorganic Chemistry Practicals-II
OC P 408	Organic Chemistry Practicals-I	OC P 458	Organic Chemistry Practicals-II
OC P 409S	Physical Chemistry Practicals-I	OC P 459	Physical Chemistry Practicals-II

Programme : M.Sc., in Analytical Chemistry

1st Semester **2nd Semester**

Course Code	Course Title	Course Code	Course Title
CA H 401	Inorganic Chemistry	CA H 451	Advanced Inorganic Chemistry
CA H 402	Organic Chemistry	CA H 452	Advanced Organic Chemistry
CA H 403	Physical Chemistry	CA H 453	Advanced Physical Chemistry
CAS 404 Or CA S 405	Inorganic Spectroscopy and Analytical Techniques Or Environmental Chemistry	CA S 454 CA S 455	Organic Spectroscopic Techniques Or Chemistry of Bio-molecules
CA S 406	Molecular Spectroscoy and Diffraction Techniques	CA E 456	Environmental, Electro- and Polymer Chemistry
CA P 407	Inorganic Chemistry Practicals-1	CA P 457	Inorganic Chemistry Practicals-II
CA P 408	Organic Chemistry Practicals-1	CA P 458	Organic Chemistry Practicals-II
CA P 409	Physical Chemistry Practicals-1	CA P 459	Physical Chemistry Practicals-II

CHANGE OF TITLE OF COURSE PAPERS IN M.SC. [II SEMESTER] PROGRAMME

SL. NO.	PROGRAMME	EXISTING TITLE	NEW TITLE
1.	Chemistry	CH S 455 : Analytical and Green Chemistry	CH S 455 : Chemistry of Biomolecules
2.	Applied Chemistry	AC S 455 : Analytical and Green Chemistry	AC S 455 : Chemistry of Biomolecules
3.	Organic Chemistry	OC S 455 : Analytical and Green Chemistry	OC S 455 : Chemistry of Biomolecules
4.	Analytical Chemistry	CA S 455 : Analytical and Green Chemistry	CA S 455 : Chemistry of Biomolecules

CH S 455: CHEMISTRY OF BIO-MOLECULES

UNIT I: **12 Hours**

Cell Structure and Functions: Structure of prokaryotic and eukaryotic cells, intra ellular organelles and their functions, comparison of animal and plant cells. Overview of metabolic processes – catabolism and anabolism. ATP- the biological energy currency. Origin of life – unique properties of carbon, chemical evolution and rise of living systems.

Lipids: Fatty acids, essential fatty acids, structure and function of triacylglycerides, glycerophospholipids, sphingolipids, cholesterol, bile acids, prostaglandins.

Lipoprotiens: composition and function, role in atherosclerosis, properties of lipid aggregates, micelles, bilayers, liposomes and their biological functions. Biological membranes- Fluid mosaic model of membrane structure. Lipid metabolism(β-oxidation of fatty acids).

Unit II: **12 Hours**

Enzymes: Introduction, Classification, Enzyme substrate complex formation models: Lock and Key model, Host-Guest and Induced- Fit model. Factors affecting enzyme activity (pH, temperature), enzyme inhibition (reversible and irreversible) and immobilised enzymes. Examples of some typical enzyme mechanisms for Triose phosphate isomerase, α- Carboxy peptidase-A and Ribonuclease. Enzymatic synthesis of α-amino acids and peptides. Transformations of lipases and esterases. Kinetic resolutions of catboxylic acids, esters and alcohols-Transesterification. Enzymatic synthesis of α-amino acids and peptides. Transformations of lipases and esterases.

Coenzymes **12 Hours**

Introduction. Co factors - cosubstrates - prosthetic groups. Classification-Vitamin derived coenzymes and metabolite coenzymes. Structure and biological functions of coenzyme A, thiamine pyrophosphate (TPP), pyridoxal phosphate (PLP), oxidized and reduced forms of nicotinamide adenosine dinucleotide / their phosphates (NAD, NADH, $NADP^+$, NADPH), Flavin adenine nucleotide (FAD, FADH2), Flavin mononucleotide (FMN, FMNH2) and tetrahydrofolate. Adenosine triphosphate (ATP) and adenosine diphosphate (ADP). Mechanism of reactions catalyzed by the above coenzymes.

References:

1. Principles of Biochemistry – A L Lehninger, Worth Publishers.
2. Biochemistry – L Stryer, W H Freeman.
3. Biochemistry – J David Rawn and Neil Patters.
4. Biochemistry – Voet and Voet, John Wiley.
5. Outlines of Biochemistry – E E Conn and P K Stumpf. John Wiley.
6. Enzyme structure and mechanism - Fersht and Freeman
7. Outlines of Biochemistry - Conn and Stumpf
8. Principles of Biochemistry - Horton & others.
9. Bioorganic chemistry - A chemical approach to enzyme action - Herman Dugas and Christopher Penney.

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