।। सा विद्या या विमुक्तये ।।

स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड

"ज्ञानतीर्थ" परिसर, विष्णुपूरी, नांदेड - ४३१६०६ (महाराष्ट्र)

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY NANDED

"Dnyanteerth", Vishnupuri, Nanded - 431606 Maharashtra State (INDIA)

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प्रस्तुत विद्यापीठीय संकुलातील विज्ञान व तंत्रज्ञान विद्याशाखेतील पदव्युत्तर स्तरावरील M. Phil. अभ्यासक्रमाचे CBCS Pattern नुसारचे अभ्यासक्रम शैक्षणिक वर्ष २०२०–२१ पासून लागू करण्याबाबत.

प रि प त्र क

या परिपत्रकान्वये सर्व संबंधितांना कळविण्यात येते की, **दिनांक २० जून २०२० रोजी संपन्न झालेल्या ४७व्या मा. विद्या परिषद बैठकीतील विषय क्र.११/४७–२०२० च्या ठरावानुसार प्रस्तुत विद्यापीठीय संकुलातील विज्ञान व तंत्रज्ञान विद्याशाखेतील पदव्युत्तर स्तरावरील M. Phil. अभ्यासक्रमाचे** खालील विषयांचे **C.B.C.S. (Choice Based Credit System) Pattern** नुसारचे अभ्यासक्रम शैक्षणिक वर्ष २०२०–२१ पासून लागू करण्यात येत आहेत.

01. M.Phil. - Geology
02. M.Phil. - Geography
03. M.Phil. – Environmental Science
04. M.Phil. – Computer Sceicne (Common To Camus & Sub Campus)
05. M.Phil. – Chemistry
06. M.Phil. – Physics

सदरील परिपत्रक व अभ्यासक्रम प्रस्तुत विद्यापीठाच्या **www.srtmun.ac.in** या संकेतस्थळावर उपलब्ध आहेत. तरी सदरील बाब ही सर्व संबंधितांच्या निदर्शनास आणून द्यावी.

'ज्ञानतीर्थ' परिसर,
विष्णुपुरी, नांदेड – ४३१ ६०६.
जा.क्र.: शैक्षणिक–१/परिपत्रक/पदव्युत्तर(संकुल)–सीबीसीएस अभ्यासक्रम/२०२०–२१/५९१

दिनांक : २४.०८.२०२०.

स्वाक्षरित/–
उपकुलसचिव
शैक्षणिक (१–अभ्यासमंडळ) विभाग

प्रत माहिती व पुढील कार्यवाहीस्तव :

१) मा. मा. अधिष्ठाता, विज्ञान व तंत्रज्ञान विद्याशाखा, प्रस्तुत विद्यापीठ.
२) मा. संचालक, परीक्षा व मूल्यमापन मंडळ यांचे कार्यालय, प्रस्तुत विद्यापीठ.
३) मा. संचालक, सर्व संबंधित संकुले, प्रस्तुत विद्यापीठ.
४) साहाय्यक कुलसचिव, पदव्युत्तर विभाग, प्रस्तुत विद्यापीठ.
५) उपकुलसचिव, पात्रता विभाग, प्रस्तुत विद्यापीठ.
६) सिस्टम एक्सपर्ट, शैक्षणिक विभाग, प्रस्तुत विद्यापीठ.

M. Phil study course syllabus Year 2020-2021

Subjectwise Course Structure

Paper title of some subjects may modified in due to course of time

M .Phil. courses at university campus school

a) M . Phil. In chemistry

Course code title of the paper	title of the paper	Mark	Credits
MP-101	Research methodology	100	4
MP-102	Information technology	100	4
MP-103	Emerging Trend in chemistry, biology & Medicine	100	4
MP-104	Advanced Selected Topics in chemistry	100	4
MP-105	Dissertation	150	6
MP-106	Viva-voce	50	2
MP-107	seminar	25	1
Total		625	25

Student may selecte specialization from paper CH-103 & CH— 104 depending upon avaibility of specialization/expertise.

School of Chemical Sciences

M. Phil Syllabus

MCH-103 : Emerging Trends in Chemistry, Biology And Medicine

(credit-4) **(60 hrs)**

Course Objective:

1.Students able to learn about how Enzymes are useful in organic reactions.

2.Students learn how natural products are useful in Medicine.

3.Students learn about Drug design and Developments.

Course Contents:

A) Enzymes in organic synthesis.

B) Drug discovery, design and development.

C) Bioinorganic Chemistry.

D) Medicinal natural products.

E) Pro-drug and drug delivery system.

Home assignment: Biophysical chemistry, Porphyrin chemistry.

BOOKS:

1. Organic Chemistry of Enzymes catalysed Reactions-Sivermans
2. Medicinal Natural products-Paul M.Dewich
3. Burgers Medicinal Chemistry-Vol.1-Vol.6
4. The organic Chemistry of Drug Design and Drug Action.
5. Bio-organic Chemistry-Hussain k.
6. Bio-organic Chemistry-Ivano Bertini.

Course Outputs:

1.Students are used some natural products as a medicinal purpose.

2.Students know the how to design and Developments in Drug discovery.

3.Students are used Enzymes in various Organic Synthesis.

4. Students are involved in uses of Bioorganic Chemistry.

MCH-104: Advanced Selected Topics in Chemistry.
(Credit-04) (60 hrs)

Course Objectives :

1.Students should learn about Green chemistry.

2.Students understand the knowledge of Nanotechnology.

3.Students learn advanced Spectroscopy and Organic reactions.

Course Contents :

A) Green Chemistry: Principals, microwave induced organic synthesis, ionic liquids in organic chemistry, ultrasound in organic chemistry, organic reactions in aqueous media, solvent free organic reactions.

B) Nanoscience and Nanotechnology: Introduction, nanoscience and naotechnology, definition, evolution of the field, recent advancement. Methods of preparation and stabilization of nanoparticles and nanocomposites a) Chemical methods of preparation, chemical reduction (reactions in micelles, emulsions and dendrimers) b) Photochemical and radiation-chemical reduction c) Cryochemical synthesis. c) Physical methods: Involving use of low temperature plasma molecular beam, gas evaporation, cathode sputtering, shock wave, electroexplosion, laser-induced

electrodispersion, supersonic jets, mechanical dispersion. Synthesis and characterization of bimetallic nanoparticles Pt-Ni, Pt-Re, Pd-Pd. Applications: Catalysis, redox process for fuel cell technology, medical applications.

C) Advanced Proton NMR: Simplification of complex spectra, complex decoupling selective decoupling, spin trickling and NOE, dynamic NMR, CIDNP relaxation NMR. Determination of stereochemistry by spectroscopic methods: Introduction J values vary with H-C-C dihedral angle, stereochemistry of fused rings the dihedral angle isnot the only angle worth measuring vicinal (^{3}J) coupling constants in other ring sizes (3, 4, 5 membered rings), an example of vicinal coupling in structural analysis: CH2 groups, geminal coupling in six membered rings, the contribution to geminal coupling, the nuclear overhanser effect. Pulse NMR: 1D pulse experiments, SEFT, SPI, INEPT, DEPT and INADE, QUATE, Two dimentional spectroscopic methods (2D): COSY, HETCOR MRI.

D) Classics in Organic Synthesis: Chemoselectivity, Regioselectivity, Stereoselectivity, chemoselectivity reductions, substitution, oxidations and epoxidations. Regioselectivity: substitution. addition regio control. Stereospecificity: Enantiospecificity, diastereospecificity, protection of functional groups in synthesis of drug molecules, retrosynthesis of some selected drug molecules.

Home assignment: Biosensors, applications of nanotechnology in bio-molecules

BOOKS:

1.Some Moderns Methods of Organic Synthesis-W.Carrathers.

2.Organic Synthesis :The Disconnection Approch.-S.Warren,John Wiley and sons.

3.Specrtocopic Methods in Organic Chemistry-D.H.willans.

4.Hand books of Green Chemistry And Technology. –James Clarks.

5.Text Books of Nano Science and Nanotechnology-Murty.

Course outcomes:

1.Students adopt principle of Green Chemistry.

2.Students able to determinination of stereochemistry by spectroscopic methods.

3.Students able to explain Retero chemistry of some Drugs.

4.Students involed in recent advancements in Nanomaterials.

MCH-105: Dissertation

MCH-106: Viva-voce

MCH-107: Seminar