



**K.R. Mangalam University**  
**Sohna Gurugram Road, Gurugram**

**SCHOOL OF BASIC AND APPLIED SCIENCES**

**Minutes of Meeting of Board of Studies**

**June 11, 2018**

6<sup>th</sup> meeting of Board of Studies of School of Basic and Applied Sciences was held on June 11, 2018 at 2 pm in the Conference Hall of A- Block of K.R. Mangalam University.

The following members were present:

Dr. Meena Bhandari (Chairperson)

Dr. Romila Manchanda (Member)

Dr. Diwakar Padalia (Member)

Dr. Vidur Malik (Member)

Dr. Anoop Kumar Vashisht (Member)

Dr. Krishan Kumar (Member)

Dr. Ruby Jindal (Member)

Prof. A.K. Prasad (External Member)

Dr. Jyotsna Sharma (Member); Dr. Seema Raj (Member); Dr. Deepa Sinha (External) could not attend the meeting.

At the outset, the Chairperson, Board of Studies extended a warm welcome to all the members present and thanked them for sharing their invaluable time and presence. She placed the agenda before the members of BOS.

**6.01: To confirm 5<sup>th</sup> minutes of meeting of BOS held on 13 June 2017:** Minutes of 5<sup>th</sup> meeting of BoS were circulated. No comments were received, and minutes were approved and confirmed (Annexure I).

**6.02: To report action taken on minutes of meeting held on 13 June 2017:** Action taken report is annexed as per Annexure II. Approved minutes were implemented for academic session 2017.

**6.03: To consider and approve the introduction of course on Data Presentation for Sciences [Course Code BSMA131; Credit 1] and revision of Introduction to computers and programming [Course Code BSCS113; Credits 3]:** Proposal for introduction of new course on

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**Data presentation for Sciences (BSMA131, Credits 1)** in the first semester of B.Sc. (H) Chemistry; B.Sc. (H) Physics and B.Sc. (H) Mathematics was placed before the committee. The purpose of this course is to provide better understanding of data compilation and presentation which will help students for writing research articles and project work. As per feedback from mathematics faculty, proposed curriculum was discussed and approved by the committee after deliberation as per annexure IIIa.

Proposal of revision of the course Introduction to computers and programming [Course Code BSCS113; Credits 3] as per feedback received from Computer Science faculty, was considered and the revised course would be Introduction to computers & it, office automation [Course Code BSCS131; Credits 4]. After deliberation revision was approved and syllabus is attached annexure IIIb.

**6.04: To revise course curriculum of Chemistry-I (BSCH 110) of B.Sc. (H) Physics and B.Sc. (H) Mathematics**

Revision of syllabus of Chemistry-I (BSCH110) which is offered to B.Sc. (H) Physics and B.Sc. (H) Mathematics students were suggested as per feedback obtained from faculty. The changes were accepted after due deliberation in the meeting. Revised syllabus of **Chemistry-I** with course code **BSCH120** was approved. Revised curriculum is attached herewith as Annexure IV. The revised course curriculum will be implemented from 2018 onwards.

**6.05: To revise course curriculum of Physical Chemistry-IV (BSCH216) offered in B.Sc. (Hons.) Chemistry**

As per feedback obtained from faculty and with relevance to industry, some changes in the course curriculum of Physical Chemistry-IV (BSCH216) of B.Sc. (H) Chemistry were proposed. These revisions were considered and approved after discussion with external expert. Revised curriculum of **Physical Chemistry-IV (BSCH226)** was approved as per annexure V

**6.06: To revise course curriculum of Low Temperature Physics (BSPH 307) offered in B.Sc. (Hons. Physics)**

Certain modifications in course curriculum of Low temperature Physics (BSPH307) were suggested as per feedback of faculty. The revised curriculum will be able to meet the demands of industry. The modifications were incorporated after discussion. Revised curriculum having title "**Low Temperature Physics and Vacuum Technology**" (BSPH311) was approved for B.Sc. (Hons.) Physics as per Annexure VI.

**6.07: To revise course curriculum of Fundamentals of Nano sciences-I (BSPH 303) offered in B.Sc. (Hons. Physics)**

As per recommendations of faculty, some revisions were suggested in the course curriculum of Fundamentals of Nano Sciences-I (BSPH303) and of Fundamentals of Nano Sciences-II (BSPH314) of B.Sc. (H) Physics. These recommendations were adopted after due deliberations courses were replaced with **Basics of Nano Sciences-I (BSPH313)** and **Basics of Nano**



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**Sciences-II (BSPH324)** in V and VI semester of B.Sc. (H) Physics respectively. Syllabus attached (Annexure-VIIa and VIIb).

**6.08: To replace Introduction of MATLAB (BSEE112) in B.Sc. (H) Physics with Basics of MATLAB (BSMA224)**

It was placed before the committee that different courses based on MATLAB are offered in B.Sc. (H) Mathematics and B.Sc. (H) Physics with different Course names and curriculum. In order to mitigate this anomaly, course on **Basics of MATLAB (BSMA224)** will be adopted in B.Sc. (H) Physics in place of Introduction of MATLAB (BSEE112). This course is also offered to B.Sc. (H) Mathematics. Same syllabus is adopted.

Revised Course Structure of B.Sc. (Hons.) Physics, B.Sc. (Hons.) Chemistry and B.Sc. (Hons.) Mathematics are attached herewith as annexures VIIIa and VIIIb.

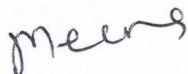
**6.09: To report action taken on the feedback obtained from the stakeholders**

The feedback received from various stakeholders i.e. students, faculty, industry experts, parents and alumni were discussed, and the action taken report was placed before the committee as per annexure IX. The members noted the same.

**6.10: Any Other Matter**

It was discussed in the meeting that preparation of syllabus of B.Sc. (Hons.) as per CBCS guidelines must be initiated.

The chairperson thanked members for their contribution and suggestions for improvement of the curricula.



Dr. Meena Bhandari

Dean SBAS

DEAN

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**SCHOOL OF BASIC AND APPLIED SCIENCES**

**Minutes of Meeting of Board of Studies**

Dated June 14, 2019

Board of Studies for School of Basic and Applied Sciences was held in Room No B012 at 12 PM on June 14, 2019.

Following were present:

S.No.	Name	Designation
1	Dr. Meena Bhandari	Dean, SBAS
2	Dr. Romila Manchanda	Associate Professor, Chemistry (Member)
3	Dr. Diraj Preet Kaur	Associate Professor, Physics (Member)
4	Dr. Ravendra Singh	Assistant Professor, Mathematics (Member)
5	Dr. Pawan Kumar	Assistant Professor, Physics (Member)
6	Dr. Seema Raj	Assistant Professor, Chemistry (Member)
7	Dr. Ruby Jindal	Assistant Professor, Physics (Member)
8	Ms. Venuka Sandhir	Assistant Professor, Mathematics (Member)
9	Mr. Ashwini Kumar	Assistant Professor, ( Member)
10	Dr. Deepa Sinha	Associate Professor (External Expert)

BOS Chairperson welcomed all members of Board of Studies and thanked profusely the external expert for her invaluable time and inputs.

**Agenda item No 7.1: To confirm the minutes of sixth meeting of BOS held on 11<sup>th</sup> June 2018.**

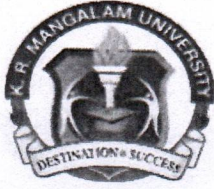
Minutes of sixth meeting of BOS were circulated. No Comments were received, and minutes were confirmed and approved. (Annexure I)

**Agenda item No 7.2: To report the action taken on minutes of sixth meeting of BOS held on 11 June 2018.**

Action taken report is annexed as per annexure II. Approved minutes were implemented for academic session 2018-19.

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**Agenda item No7.3: To consider and approve revision of course structure and syllabi of B.Sc. (H) Mathematics from academic session 2019-20**

As per feedback received from external experts, open elective and discipline specific elective courses would be offered to provide more options to student and to encourage interdisciplinary approach. To promote project based learning, theory and lab courses would be merged. Few courses would be revised as mentioned below to promote experiential learning through practical.

- Revision of course curriculum of Calculus BSMA133A (I semester), Advanced Calculus BSMA140A (II semester), Ordinary Differential Equations BSMA134A (III semester), Partial Differential equations BSMA219A (IV semester), Complex Analysis BSMA325A (V semester) and Operational Research BSMA326A (VI semester) was suggested as new experiments have been added in each course.
- Discipline specific elective courses would be offered in each semester with more number of electives.
- Descriptive statistics with course code BSMA333A (V semester) has been introduced as core paper and MAT LAB BSMA224 (IV semester) has been removed.
- Modern Algebra course has been replaced by Group Theory with course code BSMA138A (II semester) and Ring Theory with course code BSMA223A (III semester) courses.

The proposed scheme of studies along with syllabi was presented before the board and was approved after due deliberation.

Scheme of studies of B.Sc. (H) Mathematics (2019-2022), revised syllabus, feedback report, minutes of committee of courses-Mathematics is attached as annexure –III.

**Agenda item no 7.4: To consider and approve revision of course structure and syllabi of M.Sc. Mathematics from academic session 2019-20**

As per the feedback received from faculty and academia, courses such as Discrete Mathematics BSMA818A, Network Security & Cryptography BSCA330A and Artificial Intelligence BSCS401A would be offered as electives in scheme of studies. The course structure and syllabi of M.Sc. Mathematics was presented before the board and was accepted after due deliberation.

Scheme of studies of M.Sc. Mathematics (2019-2021), minutes of meeting of committee of courses-Mathematics and syllabi of new courses is attached as annexure IV.

**Agenda item No 7.5: To consider and approve revision of course structure and syllabi of B.Sc. (H) Physics from academic session 2019-20**

Based on feedback from experts, following revisions were suggested for B.Sc. (H) Physics syllabus:

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- Open elective Course -I and Open elective Course –II of 6 Credits would be offered in 1<sup>st</sup> and 2<sup>nd</sup> semesters and four discipline electives (credits 6) from 3<sup>rd</sup> to 6<sup>th</sup> semesters would be offered.
- Labs were combined with its respective theory courses as per the UGC guidelines without any change in credits.
- Ability Enhancement Compulsory Courses such as Environmental Studies (BSCH125A; 3 credits) and Communication Skills (BSEL101A; 5 credits) would be offered in 1<sup>st</sup> and 2<sup>nd</sup> semester respectively.
- Applied Optics (BSPH336A; 6 credits; core course) would be offered in 6<sup>th</sup> semester as core course.
- New pool of elective courses Experimental Techniques (BSPH237A; 6 credits; Sem IIIrd), Atmospheric Physics (BSPH239A; 6 credits; Sem IIIrd), Solid Waste Management(BSPH238A; 6 credits; Sem IVth ),Communication System (BSPH240A; 6 credits skill enhancement course; Sem IVth), Physics of the Earth (BSPH339A; 6 credits; Sem Vth), Natural Hazards Disaster Management (BSPH341A; 6 credits; Sem Sem Vth), Nano Materials and Applications (BSPH340A; 6 credits; Sem VIth ), and Embedded Systems Introduction to Microcontroller (BSPH342A; 6 credits; Sem VIth), would be introduced in place of Mathematical Physics-IV, Classical Mechanics, Atomic and Molecular Physics, Basics of Nano Sciences-I & II, Low Temperature Physics, Seminar-I & II, Mathematics-I & II, Introduction to MATLAB, Introduction to Computers and Programming, C-programming Lab, Object Oriented Language and Object Oriented Language Lab.
- Revision of following courses were done as s per feedback obtained from faculty and academia

Old Course Name	Old Course code	Credits, Semester	Name of New revised Course	Course code of revised course	Credits, semester
Optics, Oscillation and Waves	BSPH105; BSPH106	5, Sem I; 5, Sem II	Waves and Optics.	BSPH134A	6, Sem II
Modern Physics	BSPH209	3, SemIII	Elements of Modern Physics	BSPH234A	6, Sem IV
Quantum Mechanics	BSPH208	5, SemIV	Quantum Mechanics and Applications	BSPH331A	6, Sem V
Nuclear Physics	BSPH204	5, SemIV	Elementary Nuclear Physics	BSPH337A	6, Sem V





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Particle Physics	BSPH309	5, SemV	Elementary Particle Physics	BSPH334A	6, Sem VI
Digital Electronics	BSPH302	5, SemVI	Digital Systems and Applications	BSPH235A	6, Sem III
Basics of Electronics	BSPH301	5, SemV	Analog Systems and Applications	BSPH236A	6, Sem IV

The proposed course structure was accepted after due deliberation as per annexure V. Scheme of studies of B.Sc. (H) Physics (2019-2022), feedback of experts, minutes of meeting of committee of courses-Physics is attached (Annexure V).

**Agenda item No 7.6: To consider and approve revision of course structure and syllabi of M.Sc. Physics from academic session 2019-20**

As per feedback from experts, following points were suggested for improvement in curriculum of M.Sc. Physics:

- Revision in course curriculum of following courses was suggested as tabulated below:

2018-19			2019-20		
Old Course Name	Course code of Old course	Semester	Name of New revised Course	Course code of revised course (Credits)	Semester
Advanced Classical Mechanics	BSPH701 (4 credits)	I	Classical Mechanics-I	BSPH705A (4 credits)	I
			Classical Mechanics- II	BSPH706A (4 Credits)	II
Atomic and Molecular Physics	BSPH702 (4 credits)	II	Atomic and Molecular Physics-I	BSPH801A (4 credits)	III
			Atomic and Molecular Physics-II	BSPH802A (4 credits)	IV
Analog Electronics	BSPH705 (4 credits)	I	Electronics-I	BSPH703A (6 Credits)	I
Digital Principles	BSPH706 (4 credits)	II	Electronic- II	BSPH704A (6 Credits)	II





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- New course on Nanotechnology (BSPH806A; 4 credits) would be offered in place of Physics at Nanoscale-I & Nanoscale-II (BSPH805 & BSPH806; 4 credits each) and Plasma Physics-I & Plasma Physics-II (BSPH807 & BSPH804 4 credits)
- Fabrication of Electronic Devices (BSPH808A; 4 credits) would be introduced as an elective in place of Advanced Mechanics of Solids (BSPH810; 4 credits).
- Labs are clubbed with its respective theory courses.

The course structure of M.Sc. **Physics** was presented in the meeting along with revised syllabi. The proposed course structure and syllabi was approved after discussion and deliberation (Course Structures of M.Sc. Physics 2019-2021, syllabi, minutes of meeting of committee of courses-Physics is attached as Annexure VI

**Agenda Item No 7.7: To consider and approve elimination of Seminar from the syllabus of M.Sc. Chemistry from semester I and III from 2019 onwards**

University has adopted the new evaluation scheme from the session 2018 onwards which involves presentation by students in each course. In view of that there is no need to have seminar separately in the course structure of M. Sc. Chemistry. Seminar offered in I and III semesters are removed from the course structure of M. Sc. Chemistry as per feedback obtained from faculty.

The proposal was accepted. (Course Structures of M. Sc. Chemistry 2018-2020 and 2019-2021 are attached; (Annexure VII)

**Agenda item no 7.8: To consider and approve the amendment in Course Structure and syllabi of B. Sc. (H) Chemistry (2019-2022) to be offered from academic year 2019 onwards**

The course structure of B.Sc. (Hons.) Chemistry was presented. Following points were discussed:

- Theory and Lab courses have been merged in all courses without any change in credits.
- Ability Enhancement Compulsory Courses such as Environmental Studies and Communication Skills are placed in I and II semester respectively. More options are provided to the students in the form of discipline elective courses (offered in III, IV and V semester): DSC I-[BSCH239A FERTILIZER CHEMISTRY, BSCH241A INORGANIC MATERIALS FOR INDUSTRIAL USE], DSCE II- [BSCH240A CHEMISTRY OF FUELS, BSCH242A PESTICIDES], DSC II-[BSCH339A NUCLEAR CHEMISTRY, BSCH341A COSMETICS AND PERFUMES] (CREDITS 2 each) and open elective courses (offered in I II semester) in B.Sc. (Hons.) Chemistry program: OPEN ELECTIVE I [BSPH120A CONDENSED MATTER PHYSICS; BSCH241A





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INORGANIC MATERIALS FOR INDUSTRIAL USE; BSMA141A FUNDAMENTALS OF CALCULUS; IIT101A [HARNESSING THE POWER OF WEB AS A KNOWLEDGE DEVICE] & OPEN ELECTIVE II [BSPH217A APPLICATIONS OF MATERIALS, BSMA142A ESSENTIALS OF MATHEMATICS, IIT104A UNDERSTANDING THE POWER OF DATA] of Credits 4 each.

- Skill enhancement courses such as Analytical Chemistry (BSCH218A; Credit 5, Semester IV) was proposed.
- New courses such as Novel Materials (BSCH338A; Credit 4, Semester VI), Green Chemistry (BSCH237A; Credit 5, Semester III) were proposed as core course and new electives have been introduced.
- Research Project offered in VI semester is of 6 credits to give more impetus to research skills of students.

The proposed course structure and syllabus was accepted (Course Structures of B.Sc. (H) Chemistry 2019-2022 is attached as annexure VIIIa & VIIIb.

**Agenda item no 7.9: To consider and approve the Value-Added Courses Technical Writing (VAC016) and Quantitative Research (VAC028) for the academic session 2019-20**

It was proposed in the meeting that Technical Writing (VAC016) and Quantitative Research (VAC028) would be introduced for the academic session 2019-20 to enhance technical writing & communication skills and analytical and research skills of the students. The syllabus was discussed and finalized in the meeting as per Annexure IXa and IXb.

**Agenda item no 7.10: To report action taken on the feedback obtained from the stakeholders**

The feedback received from various stakeholders i.e. students, faculty, industry experts, parents and alumni were discussed, and the action taken report was placed before the committee as per annexure X. The members noted the same.

The Chairperson thanked members for their gracious presence, active participation and useful suggestions. As a part of discussion, it emerged out faculty who is teaching Environmental Studies and Disaster Management would try to develop e- Content for these courses which are offered PAN University in the next semester as online teaching has become a necessity during pandemic.

*meena*

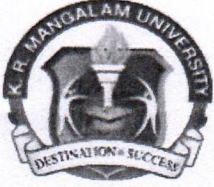
**Dr Meena Bhandari**  
**Chairperson-BOS**  
**School of Basic and Applied Sciences**

DEAN  
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*Jmd*

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CC:

Dean Academics

Registrar

All Members

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School of Basic and Applied Sciences

Minutes of Meeting of Board of Studies

Dated June 3, 2020

The Board of Studies meeting for the School of Basic and Applied Sciences was held online at 2 PM on June 3, 2020. Following members were present:

S. No.	Name	Designation
1	Dr. Meena Bhandari	Dean, SBAS
2	Dr. Diraj Preet Kaur	Associate Professor, Physics (Member)
3	Dr. Ravendra Singh	Assistant Professor, Mathematics (Member)
4	Dr. Pawan Kumar	Assistant Professor, Physics (Member)
5	Dr. Seema Raj	Assistant Professor, Chemistry (Member)
6	Ms. Venuka Sandhir	Assistant Professor, Mathematics (Member)
7	Prof. Shiv Kumar Kaushik	External Expert, Mathematics
8	Prof. Sharda Pasricha	External Expert, Chemistry

The Dean, School of Basic and Applied Sciences, welcomed all members of the Board of Studies and thanked the external experts for sparing their invaluable time and feedback. She placed the agenda before the members of BOS.

**8.01. To confirm the minutes of 7<sup>th</sup> Meeting of BOS held on 14<sup>th</sup> June 2019**

Minutes of seventh meeting of BOS were circulated. No comments were received, and minutes were confirmed and approved (Annexure I).


**8.02. To report the action taken on minutes of meeting of 7<sup>th</sup> Meeting of BOS held on 14<sup>th</sup> June 2019**

Action taken report is annexed as per Annexure II. Approved minutes were implemented for academic session 2019-20.

**8.03 To approve the scheme of studies along with revision in curricula of B. Sc. (Hons.) Mathematics from academic session 2020-21 as per LOCF**

As per UGC directive for implementation of learning outcome curriculum framework (LOCF) and expert feedback, the scheme of studies of B.Sc. (H) Mathematics was revised and presented before the board. Following courses of B. Sc. (H) Mathematics have been revised:

Revised Courses from academic session 2020-21								
2019				2020				
Existing Course Code	Existing Course	Credits	Semester	Revised Course Code	Revised Course	Credits	Semester	%Revision

  
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BSMA137 A	Algebra	4	I	BSMA1 23A	Algebra And Geometry	6	I	75%
BSMA133 A	Calculus	5	I	BSMA1 21A	Calculus	4	I	60%
BSMA134 A	Ordinary Differential Equations	4	III	BSMA1 24A	Ordinary Differential Equations	4	II	50%
BSMA217 A	Real Analysis		III	BSMA2 16A	Real Analysis		IV	25%
BSMA219 A	Partial Differential Equations	4	IV	BSMA2 11A	Partial Differential Equations and Calculus of Variations	4	III	30%
BSMA218 A	Special functions and Integral Transforms	5	IV	BSMA3 09A	Integral Transforms and Fourier Analysis	6	V	50%
BSMA220 A	Linear Algebra	5	IV	BSMA2 14A	Linear Algebra	6	IV	30%
BSMA323 A	Metric Spaces	5	V	BSMA3 03A	Set Theory and Metric Spaces	6	V	25%
BSMA325 A	Complex Analysis	4	V	BSMA3 02A	Complex Analysis	4	VI	35%
BSMA342 A	Mathematical Statistics	5	VI	BSMA2 15A	Probability And Statistics	4	III	25%
BSMA331 A	Numerical Analysis	4	V	BSMA3 01A	Numerical Analysis	4	V	25%
BSMA326 A	Operational Research	4	VI	BSMA3 04A	Linear Programming	4	VI	40%
BSMA334 A	Differential Geometry	5	VI	BSMA3 05A	Tensors And Differential Geometry	6	V	50%
BSMA223 A	Ring Theory	5	III	BSMA2 12A	Advanced Algebra	6	IV	60%
BSMA140 A	Advanced Calculus	5	II	BSMA1 22A	Multivariable Calculus	4	II	50%
BSMA138 A	Group Theory	4	II	BSMA2 13A	Group Theory	6	III	40%



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BSMA251 A	Ordinary Differential Equations Lab	1	III	BSMA1 74A	Ordinary Differential Equations Lab	2	II	25%
BSMA252 A	Partial Differential Equations Lab	1	IV	BSMA2 75A	Partial Differential Equations and Calculus of Variations Lab	2	III	25%
BSMA352 A	Operational Research Lab	1	VI	BSMA3 74A	Linear Programming Lab	2	VI	25%
BSMA146 A	Graph Theory	4	II	BSMA3 13A	Graph Theory	6	V	10% (Minor Revision)

Following courses have been replaced with new courses as tabulated below:

Addition of New Courses from Academic session 2020-21							
2019				2020			
Existing Course Code	Existing Course	Credits	Semester	New Course Code	New Course	Credits	Semester
BSCS102 A	Information Technology Fundamentals	4	I	BSMA171A	Calculus Lab	2	I
BSMA136 A	Analytical Geometry	4	I	BSMA126A	Latex And Html	2	I
BSMA327 A	Dynamics	4	II	BSMA176A	Latex And Html Lab	2	I
BSMA135 A	Vector Analysis		II	BSMA172A	Multivariable Calculus Lab	2	II
BSCS166 A	Object Oriented Programming Lab	1	III	BSMA273A	Probability And Statistics Lab	2	III
BSCS112 A	Object Oriented Programming	4	III	BSMA226A	Computer Algebra Systems and Related Software	2	IV
BSMA332 A	Combinatorial Mathematics	4	IV	BSMA272A	Computer Algebra Systems and Related Software Lab	2	IV
				BSMA307A	Mathematical Logic	6	V
BSMA333 A	Descriptive Statistics	4	V	BSMA311A	Information Theory and Coding	6	V
				BSMA315A	Special Theory and Relativity	6	V
				BSMA306A	Advanced Mechanics	6	VI



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BSMA338 A	Mathematical Modelling	5	VI	BSMA308A	Wavelets And Applications	6	VI
				BSMA312A	Cryptography	6	VI
BSMA324 A	Riemann Integration and Series of Functions	5	VI	BSCS113A	C++Programming for Mathematics	4	VI
BSMA221 A	Statics	5	VI	BSCS167A	C++Programming for Mathematics Lab	2	VI

The scheme of studies of B.Sc. (Hons.) Mathematics along with revised curricula was approved from academic session 2020-21(Annexure III). Total credits offered are 152.

**8.04 To approve the scheme of studies and revision in curricula of B.Sc. (Hons.) Mathematics from session 2020-21 for 2019-22 batch**

As a pilot program, theory and labs were merged for B.Sc. (Hons.) Mathematics for the batch 2019-22. After a year, based on the feedback from faculty and students, it was realized that theory and lab should be treated as separate courses and course structure of B.Sc. (Hons.) Mathematics for 2019-22 batch was restructured from third semester onwards. Therefore from 3<sup>rd</sup> semester to 6<sup>th</sup> semester the credits of lab and theory were separated. Credit relocation was also proposed.

As per feedback received from academia and for providing practical knowledge to the students, following amendments were suggested for B.Sc. (Hons.) Mathematics (Batch 2019-22):

Existing Course Code	Existing Course	Credits	Semester	New Course Code	New Course	Credits	Semester
BSMA221	Statics		III	BSMA 223A	Ring Theory		III
BSCH207	Chemistry-II		III				
BSCH257	Chemistry Lab-II		III		Generic Elective II		III
BSPH257	Physics-II theory		III				
BSPH 158	Physics Lab-II		III	BSDM301A	Disaster Management		III
BSMA224	Basics of MATLAB		IV		Generic Elective III		IV
BSMC226	Portfolio Optimization		IV		Discipline Elective III		IV
BSMA332	Combinatorial Mathematics		V	BSMA333A	Descriptive Statistics		V
BSCS214	Theory of Computation		V	BSMA355A	Descriptive Statistics Lab		V
BSMA329	Discrete Mathematics		VI	BSMA357A	Complex Analysis Lab		V



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	Elective –I			BSMA352A	Operational Research Lab		VI
	Elective –II		VI		Discipline Elective IV		VI

The revised Scheme of Studies and curricula were discussed in the board and were approved after due deliberation as per Annexure IV. Total credits offered are 150.

**8.05 To approve the Scheme of Studies of B.Sc. (Hons.) Chemistry with revision in curricula from academic session 2020-21 as per LOCF**

The Scheme of Studies of B.Sc. (H) Chemistry as per LOCF was presented before the board. Based on suggestions given by external experts and UGC guidelines on the matter, the scheme of studies as per LOCF was proposed before the committee for consideration. It was proposed that the following courses in chemistry would be offered for session 2020-21.

Existing Course Code	Existing Course Title	Total Credits	Semester	New Course Code	New Course Title	Total Credits	Semester
BSCH313A	Quantum Chemistry and Spectroscopy	4	V	BSCH208A	Introduction to Quantum Chemistry	4	IV
BSCH363A	Quantum Chemistry and Spectroscopy Lab	2	V	BSCH256A	Introduction to Quantum Chemistry Practicals	2	IV
BSCH314A	Spectroscopy And Applied Organic Chemistry	4	VI	BSCH303A	Molecular Spectroscopy and Photochemistry	4	V
BSCH364A	Spectroscopy And Applied Organic Chemistry Lab	2	VI	BSCH353A	Molecular Spectroscopy and Photochemistry Practicals	2	V
				BSCH361A	Biomolecules Lab	2	VI
BSCH315A	Novel Inorganic Solids	4	V	BSCH302A	Chemistry Of Materials	4	VI
BSCH365A	Novel Inorganic Solids Lab	2	V	BSCH352A	Chemistry Of Materials Practicals	2	VI



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Proposal to increase discipline specific elective courses pool was placed before the board. Four Discipline specific Elective courses would be offered in V and VI semester as per following table:

Course Code	Elective Course Title	Total Credits	Semester	Course Code	Elective Course Title	Total Credits	Semester
BSCH305A	Medicinal Chemistry	4	V	BSCH354A	Environmental Chemistry Practicals	2	VI
BSCH355A	Medicinal Chemistry Practicals	2	V	BSCH306A	Organic Spectroscopy	4	VI
BSCH307A	Hetreocyclic Chemistry	4	V	BSCH356A	Organic Spectroscopy Practicals	2	VI
BSCH357A	Hetreocyclic Chemistry Practicals	2	V	BSCH308A	Introduction of Nanochemistry and Applications	4	VI
BSCH309A	Advance Material Chemistry	4	V	BSCH368A	Introduction of Nanochemistry and Applications Practicals	2	VI
BSCH359A	Advance Material Chemistry Practicals	2	V	BSCH310A	Green Processes of Chemistry	4	VI
BSCH321A	Organometallic And Bioinorganic Chemistry	4	V	BSCH360A	Green Processes of Chemistry Practicals	2	VI
BSCH371A	Organometallic And Bioinorganic Chemistry Practicals	2	V	BSCH332A	Polymer Chemistry	4	VI
				BSCH372A	Polymer Chemistry Practicals	2	VI

Generic Elective courses would be offered in III and IV semester and the pool of Generic elective is given below.



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Course Code	Generic Elective Course	Credits	Semester
BSMA151A	Basics of Mathematics-I	4	III or IV
BSMA153A	Basics of Mathematics-I Practicals	2	III or IV
BSPH121A	Basics of Physics-I	4	III or IV
BSPH161A	Basics of Physics-I Practicals	2	III or IV
BSMA152A	Basics of Mathematics-II	4	III or IV
BSMA154A	Basics of Mathematics-II Practicals	2	III or IV
BSPH122A	Basics of Physics-II	4	III or IV
BSPH162A	Basics of Physics-II Practicals	2	III or IV
BSCH233A	Life Science/Biology-I	4	III or IV
BSCH273A	Life Science/Biology-I Practicals	2	III or IV
BSCH234A	Life Science/Biology-II	4	III or IV
BSCH274A	Life Science/Biology-II Practicals	2	III or IV

Following three additional skill enhancement courses would be offered as per following table:

Existing Course Code	Existing Course Code	Credits	Semester	New Course Code	New Course Code	Credits	Semester
				BSCH137A	Herbal Technology	2	I
BSCH217 A	Intellectual Property Rights	4	III	BSCH132A	Fermentation Science and Technology	2	I
				BSCH134A	Intellectual Property Right (IPR) And Business Skills for Chemists	2	



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Pool of Ability Enhancement Courses:

ABILITY ENHANCEMENT COURSES-I					
BSCH125A	ENVIRONMENTAL STUDIES	3	0	0	3
BSCH131A	RENEWABLE ENERGIES (SOLAR & BIOGAS)	3	1	0	4
BSCH133A	WATER REMEDIATION AND CONSERVATION STUDIES	3	1	0	4
BSCH135A	GOOD LABORATORY PRACTICES	3	1	0	4

Summary of courses offered is tabulated below:

2019		2020	
Type of Course	Credits	Type of Course	Credits
Core Courses=16	89	Core Courses=15	90
Discipline specific courses=04	24	Discipline specific Elective courses=04	24
Skill enhancement Courses =2	8	Skill enhancement Courses =4	10
Ability Enhancement Courses=2	8	Ability Enhancement Courses=2	7
Disaster Management	3	Disaster Management	3
Value Added Courses=1	Non-credit	Value Added Courses=2	Non-credit
Generic Elective=4	16	Generic Elective=4	24
	148		158

The modified scheme of studies along with revised curricula was approved as per annexure (Annexure V).

**8.06 To consider and approve revision and restructuring in Program Course Structure and curriculum of B.Sc. (Hons.) Chemistry for 2019-22 batch and 2018-21 batch**

As a pilot program, theory and labs were merged for B.Sc. (Hons.) chemistry for the batch 2019-22. After a year, based on the feedback from faculty and students, it was realized that theory and lab should be treated as separate courses and course structure of B.Sc. (Hons.) Chemistry for 2019-22 batch was restructured



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from third semester onwards. Therefore from 3<sup>rd</sup> semester to 6<sup>th</sup> semester the credits of lab and theory were separated. Credit relocation was also done.

Credits allocated to Theory courses were 4 credits keeping theory curriculum same for 3<sup>rd</sup> and 4<sup>th</sup> semester. Along with theory, Inorganic Chemistry-III Lab (BSCH261A); Organic Chemistry-III Lab (BSCH263A); Physical Chemistry-III Lab (BSCH265A); Inorganic Chemistry-IV Lab (BSCH262A); Organic Chemistry-IV Lab (BSCH264A); Physical Chemistry-IV Lab (BSCH266A) having two credits were introduced in 3<sup>rd</sup> and 4<sup>th</sup> Semester.

Courses BSCH237A Green Chemistry (from 3<sup>rd</sup> semester) and BSCH218A Analytical Chemistry (from 4<sup>th</sup> semester) were replaced by BSCH217A Intellectual Property Rights (Credit=4) and BSDM301A Disaster Management (Credit=3) in 3<sup>rd</sup> semester and BSPH120A Condensed Matter Physics (Credit=4) as Generic Elective Course in 4<sup>th</sup> semester as suggestions received from experts as tabulated below:

Existing Course Code	Name of Existing Course	Credits	Semester	New Course Code	New course Introduced	Credits	Semester
BSCH237A	Green Chemistry		III	BSCH217A	Intellectual Property Rights	4	III
				BSDM301A	Disaster Management	3	III
BSCH218A	Analytical Chemistry		IV	BSPH120A	Condensed Matter Physics	4	IV

CBCS curriculum was adopted for 5<sup>th</sup> and 6<sup>th</sup> semester by introducing discipline specific courses and Core courses for B.Sc. (Hons.) Chemistry for 2019-22 and 2018-21 batch (Annexure VI)

#### 8.07 To approve the scheme of studies and curricula of B. Sc. (Hons.) Physics from academic session 2020-23

The scheme of studies of B.Sc. (Hons.) Physics as per UGC-LOCF was proposed along with curricula. Additional skills enhancement courses were proposed as per LOCF.

Course Name	Credits	Semester
Physics workshop Skill	4	I
Introduction to Computers	2	I
Electrical Circuits and Network Skills	4	II

Total credits offered would be 160(Annexure VII).

#### 8.08 To approve the scheme of studies and curricula of B.Sc. (Hons.) Physics from academic session 2020-21 for 2019-22 batch

In scheme of studies (2019-22), course and lab were under same course code but from 3<sup>rd</sup> semester onwards, separate theory courses and lab courses having different code for better handling of their evaluation was proposed. The proposal was considered and approved. The scheme of studies is enclosed as Annexure VIII.



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**8.09 To approve the scheme of studies of B.Sc. Program and curricula from academic session 2020-21**

The proposal of introduction of B.Sc. Program to be offered from 2020-21 was placed before the board. The scheme of studies of B.Sc. Program was proposed along with curricula. Total credits offered would be 160. The same was accepted and approved as per Annexure IX.

**8.10 To consider and approve Disaster Management as compulsory course to be offered from 2020 onwards to undergraduate students**

As per mandate of UGC, it was suggested in the meeting that Disaster Management course would be taught as compulsory course in third semester (Credit 3) to undergraduate students from academic session 2020 - 21 onwards. For admission years 2019 and 2018, Disaster Management would be taught in forth coming academic year 2020-21 in odd semester i.e., in third and fifth semesters. The proposal was accepted, and the curriculum was approved.

**8.11 To consider and approve Value-Added Course "Problem Solving and Creativity (VAC045)"**

The list of Value-added courses (Non-credit) courses to be offered to undergraduate PAN university students was proposed before the board as per Annexure X. Undergraduate students of B.Sc. (Hons.) Physics, Chemistry and Mathematics would study these courses in sixth semester. The proposed courses were approved. It was also proposed that SBAS would offer Problem Solving and Creativity VAC045 for the academic session 2020-21. The syllabus was discussed and approved as per annexure Xa.

**8.12 To report changes in academic calendar**

Approval was accorded to changes in Academic calendar (events/dates/mode of examination) due to lockdown from March 23, 2020, to May 15, 2020, as classes were conducted online as per schedule attached (Annexure XI).

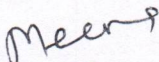
**8.13 To consider and approve the list of examiners and paper setters**

The list of examiners/paper setters was tabled before the committee and was approved as per (Annexure XII).


**8.14. To report action taken on the feedback obtained from the stakeholders**

The feedback received from various stakeholders i.e. students, faculty, industry experts, parents and alumni were discussed, and the action taken report was placed before the committee as per annexure XIII. The members noted the same.

The meeting ended with a vote of thanks to the Chair.

  
**Dr Meena Bhandari**  
**Dean SBAS**

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Dated: June 30, 2021

**MINUTES OF 9<sup>TH</sup> BOS MEETING OF SCHOOL OF BASIC AND APPLIED SCIENCES**

9<sup>th</sup> Meeting of Board of Studies (BOS) for the School of Basic and Applied Sciences was held on **June 29, 2021 at 02.00 P.M.** virtually through MS Teams. Following members were present:

Dr Meena Bhandari (Chairperson)

Dr Diwaker Padalia (Member, Physics)

Dr Pawan Kumar (Member, Physics)

Dr Dilraj Preet Kaur (Member, Physics)

Dr Seema Raj (Member, Chemistry)

Dr Yogendra Kumar Rajoria (Member, Mathematics)

Ms Venuka Sandhir (Member, Mathematics)

Prof. Shiv Kumar Kaushik (External Member, Mathematics)

Prof. Sharda Pasricha (External Member, Chemistry)

At the outset, the Chairperson, Board of Studies extended a warm welcome to all the members present in the meeting and thanked them for their gracious presence. She placed the agenda before the members of BOS.

**9.01. To confirm the minutes of 8<sup>th</sup> Meeting of BoS held on 3<sup>rd</sup> June 2020**

Minutes of eighth meeting of BoS were circulated. No comments were received, and minutes were approved and confirmed (Annexure I).

**9.02. To report the action taken on MoM of 8th Meeting of BoS held on 3<sup>rd</sup> June 2020**

Action report taken is annexed as per Annexure II. Approved minutes were implemented for academic session 2020-21. (Annexure II).

**9.03. To consider and approve the improvised Vision and Mission of SBAS**

Vision and Mission have been laid down since inception of university. Over the period of time, with the progression of knowledge and skills, University has been evolving its Vision and Mission. In alignment with University Vision and Mission, the Vision and Mission of School of Basic and Applied Sciences was presented in the meeting and same was approved (Annexure III).

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**9.04. To consider and approve common course codes of Environmental Studies (BSCH125A to UCES125A) and Disaster Management (BSDM301A to UCDM301A) from session 2021-22 onwards**

Each School of the University has been offering courses on Environmental Studies and Disaster Management with their own course codes. As both the courses are being offered by SBAS, common course codes have been allocated to them. The course code for Environmental Studies would be UCES125A (3 credits) and for Disaster Management, it would be UCDM301A (3 credits) from academic session 2021-22. This proposal was approved in the meeting (Annexure IV).

**9.05. To consider and approve the introduction of new computer-based courses in the scheme of studies of B.Sc. (H) Mathematics, B.Sc. (Hons.) Chemistry and B.Sc. (Hons) Physics from academic year 2021-22**

As per feedback from academic and industry experts and to enhance the computer skill, knowledge and employability of graduates, the proposal for introduction of new courses "Introduction to Computers and Programming in Python" (BSCS104A, 4 credits), "Introduction to Computers and Programming in Python Lab" (BSCS150A, 1 credit) in second semester, "Data Analysis and Visualization" (BSCS109A) "Data Analysis and Visualization Lab" (BSCS159A) in third semester and "Introduction to LaTeX" (BSMA274A, 1 credit) in fourth semester in scheme of studies of B.Sc. (Hons.) Mathematics, B.Sc. (Hons.) Physics and B.Sc (Hons.) Chemistry was placed before the board. The amendments in the scheme of studies of various programs have been tabulated below:

Program	Existing Course	Existing Course Code, credits	Course offered in Semester	New Course Introduced	New course Code, credits	Course offered in Semester
B.Sc. (Hons) Mathematics	LaTeX and HTML	BSMA126A, Credits 2	II	Introduction to Computers and Programming in Python	ETCS104A, 4 credits	II
	LaTeX and HTML Lab	BSMA176A, 2 credits	II	Introduction to Computers and Programming in Python Lab	ETCS150A, 1 credit	II
				Data Analysis and	BSCS109A,2	III





				Visualization	credits	
				Data Analysis and Visualization Lab"	BSCS159A, 1 credit	III
	Computer Algebra Systems and Related software	BSMA226A, credits 2	IV	Introduction to LaTeX"	BSMA274A, 1 credit	IV
	Computer Algebra Systems and Related software Lab	(BSMA272 A, credits 2)	IV			
B.Sc. (Hons.) Chemistry	Information Technology Fundamentals	(BSCS102A, Credits 4)	I	Introduction to Computers and Programming in Python	ETCS104A, 4 credits	II
				Introduction to Computers and Programming in Python Lab	ETCS150A, 1 credit	II
				Data Analysis and Visualization	BSCS109A, 2 credits	III
				Data Analysis and Visualization Lab"	BSCS159A, 1 credit	III
				Introduction to LaTeX	BSMA274A, 1 credit	IV
B.Sc. (Hons.) Physics				Introduction to Computers and Programming in Python	ETCS104A, 4 credits	II
				Introduction to Computers and Programming in Python Lab	ETCS150A, 1 credit	II
	Generic Elective-III	4 credits	III	Data Analysis and Visualization	BSCS109A,	III
	Generic Elective-III Lab	2 credits	III	Data Analysis and Visualization Lab"	BSCS159A, 1 credit	III
	Generic	4 credits	IV	Introduction to	BSMA274A,	IV

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	Elective-IV			LaTeX"	1 credit	
	Generic Elective-IV Lab	2 Credits	IV			

After deliberation, the agenda was approved. After amendment the total credits of B.Sc. (Hons.) Mathematics would be 148. The total credits offered in B.Sc. (Hons.) Physics and B.Sc. (Hons.) Chemistry would be 152 and 168 respectively (Annexures: Scheme of Studies and syllabus of new courses).


Two economic papers offered as generic elective "Indian Economy -I" and "Indian Economy -II" would be replaced by "Statistical Methods for Economics" (BSES213A, Credits 6) and "Econometrics " (BSES216A, Credits 6) in III and IV semesters respectively in B.Sc.(H) Mathematics from academic session 2021-22 as per feedback of economics faculty to make the curriculum more contemporary and transdisciplinary. Curricula are attached as Annexure V

**9.06. To report non-registration of B.Sc. (Hons.) Mathematics students (Batch 2020-2023) for MOOC and to offer MOOC course on Matrix Analysis with Applications (2 credits) in III year**

Students of B.Sc. (H) Mathematics batch 2020-2023, could not be opt MOOC course in III semester as semester commenced late due to pandemic and registration for MOOC was closed for that course so it was proposed that MOOC course on **Matrix Analysis with Applications** (2 credits, MOOC Course available on Swayam) would be offered to students either in Vth semester or VI semester to complete the knowledge of students. A modified course structure is attached herewith having total credits of 152 (Annexure VI).

**9.07. To consider and approve the Program Outcome (PO), Program Specific Outcome (PSO), Program Educational Objectives (PEO) and Course Outcome (CO) of B.Sc. (Hons.) Mathematics and M.Sc. Mathematics from 2021 as per OBE pedagogy**

Outcome-Based Education (OBE) is a student –centric teaching and learning methodology in which the course delivery and assessments are planned to achieve stated outcomes. The Program Outcome (PO), Program Educational Objectives (PEO), Program Specific Outcome (PSO) & Course Outcome (CO) of each course of B.Sc (Hons.) Mathematics and M.Sc Mathematics have been designed which focus on measuring students' performance i.e. outcomes at different levels and ensure that the students are following the exponential progressive learning by means of various teaching tools. The same were approved by the Board of Studies members as per Annexure VII

  
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**9.08. To consider and approve the curricula revision for three courses of M.Sc. Chemistry: BSCH701 (Chemistry of D and F Block Elements) to BSCH707A (Chemistry of D and F-Block Elements and Bioinorganic Chemistry); BSCH702 (Chemistry of Boron, Silicon and Organometallic Compounds) to BSCH708 (Boranes, Silicates and Organometallic Compounds) and BSCH801 (Co-ordination Chemistry) to BSCH807 (Co-ordination Chemistry and Inorganic Polymer Chemistry)**

As per feedback from academic experts, revision in curricula of three courses offered in M.Sc. Chemistry were suggested i.e. BSCH701 (Chemistry of D and F Block Elements); BSCH702 (Chemistry of Boron, Silicon and Organometallic Compounds) and BSCH801 (Co-ordination Chemistry). The purpose of revision of these courses was to provide core competency and meet the recent requirements of the course. The revised syllabus was presented before the committee and was approved after deliberation (Annexure VIII). The revised changes are tabulated below:

Existing Course	Course Code of Existing Course, credits	Revised Course	Revised Course Code, credits	Semester
Chemistry of D and F Block Elements	BSCH701, 4 credits	Chemistry of D and F-Block Elements and Bioinorganic Chemistry	BSCH707A, 4 credits	I
Chemistry of Boron, Silicon and Organometallic Compounds	BSCH702, 4 credits	Boranes, Silicates and Organometallic Compounds	BSCH708, 4 credits	II
Co-ordination Chemistry	BSCH801, 4 credits	Co-ordination Chemistry and Inorganic Polymer Chemistry	BSCH807, 4 credits	III

**9.09. To consider and approve the Program Outcome (PO), Program Specific Outcome (PSO), Program Educational Objectives (PEO) and Course Outcome (CO) of B.Sc. (Hons.) Chemistry and M.Sc. Chemistry from academic session 2021-22 as per OBE pedagogy**

Program Outcome (PO), Program Specific Outcome (PSO) and Course Outcome (CO) along with curricula for B.Sc. (Hons) Chemistry and M.Sc. Chemistry were presented which were approved by the committee as per Annexure IX.





**9.10. To consider and approve the Program Outcome (PO), Program Specific Outcome (PSO), Program Educational Objectives (PEO) and Course Outcome (CO) of B.Sc. (Hons.) Physics and M.Sc. Physics from academic session 2021-22 as per OBE pedagogy**

The Scheme of Studies of B.Sc. (Hons) Physics and M.Sc. Physics along with Program Outcome (PO), Program Specific Outcome (PSO) and Course Outcome (CO) and syllabus were presented in the meeting which was approved by the committee as per Annexure X.

**9.11. To consider and approve the list of paper setters, moderators and evaluators for all programs**

The list of paper setters, moderators and evaluators was tabled before the board and was approved as per Annexure XI.

**9.12 To consider and approve additional course of Mathematics BSMA122A (Multivariable Calculus) in B.Sc. (H) Chemistry 2019-2022 batch in 6<sup>th</sup> Semester**

Proposal to offer additional course in mathematics **Multivariable Calculus (BSMA122A)** to the students of B.Sc. (H) Chemistry (2019-2022 batch) in order to enhance their competency as well as eligibility to apply for higher education was placed before the board. The committee members deliberated on this, and it was decided additional course (BSMA122A-Credit 4) would be offered to 6 semester students of B.Sc. (Hons.) chemistry (2019-2022 batch) as an additional course and students who want to register for this course would be provided with an opportunity to do so (Annexure XII).

**9.13. To consider and approve both online and offline mode of teaching for M.Sc. Part time- students**

It was proposed that Part Time M.Sc. Courses would be taught through online mode. However, students would be asked to visit the campus at the end of semester to do practical work for a period of two weeks. The proposal was accepted.

**9.14. To consider and approve the syllabus of Value-added Course "Understanding of Research" VAC116 and Rural Technology VAC075 in even semester from academic session 2021-22 onwards**

School of Basic and Applied Sciences would offer Non- credit Value Added Course on Understanding of Research (VAC116) and Rural Technology (VAC075) from the academic session 2021-22 to PAN university undergraduate students. The syllabi were placed before the committee and were approved (Annexure-XIII).





**9.15. To report the reshuffling of courses of B.Sc. (Hons.) Mathematics and B.Sc. (Hons.) Chemistry, B.Sc. (Hons.) Physics and B.Sc. General (1st and 2nd sem) in August 2020 due to COVID Pandemic**

It was reported in the meeting that some of courses offered in first and second semester of B.Sc. (Hons.) Mathematics, B.Sc. (Hons.) Chemistry, B.Sc. (Hons.) Physics and B.Sc. General were reshuffled in August 2020 due to COVID Pandemic to meet the challenges of online teaching initiated vis-à-vis grouping of students. Grade sheet of first and second semester for 2020-21 batch would be issued after even semester.

**9.16. To report action taken on the feedback obtained from the stakeholders**

The feedback received from various stakeholders i.e. students, faculty, industry experts, parents and alumni were discussed, and the action taken report was placed before the committee. The members noted the same.

The meeting ended with a vote of thanks to the Chair.

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**Dr Meena Bhandari**  
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Ref. No.: KRMU/SBAS/BOS-MOM/2022-23/1

Dated: July 26, 2022

**MINUTES OF 10TH BOS MEETING OF SCHOOL OF BASIC AND APPLIED SCIENCES, K.R. MANGALAM UNIVERSITY HELD ON 25/07/2022**

10<sup>th</sup> Meeting of Board of Studies (BOS) for the School of Basic and Applied Sciences was held on July 25, 2022 at 11:00 am in Physical mode with external expert Mathematics and in virtual mode with external experts of Physics, Chemistry, and Forensic Science at 02.00 P.M. through MS Teams. Following members were present:

- Dr Meena Bhandari (Chairperson)
- Dr Diwaker Padalia (Member, Physics)
- Dr Pawan Kumar (Member, Physics)
- Dr Dilraj Preet Kaur (Member, Physics)
- Dr Seema Raj (Member, Chemistry)
- Dr Pooja Vats (Member, Mathematics)
- Dr Ruby Jindal (Member, Physics)
- Dr Yogendra Kumar Rajoria (Member, Mathematics)
- Prof. P.C. Jha (External Expert, Mathematics)
- Prof. G.S. Sodhi (External Expert, Forensic Science)
- Prof. Sunil Kumar (External Expert Physics)
- Prof. Raj Kishore Sharma (External Expert, Chemistry)

At the outset, the Chairperson, Board of Studies extended a warm welcome to all the members present in the meeting and thanked them for sparing their invaluable time. She placed the agenda before the members of BOS.

**10.01. To confirm the minutes of 9<sup>th</sup> Meeting of BOS held on June 29, 2021.**

Minutes of the ninth meeting of BOS were circulated. No comments were received, and minutes were approved and confirmed (Annexure I).

**10.02. To report the action taken on MoM of 9<sup>th</sup> Meeting of BOS held on June 29, 2021.**

Action taken report was presented before the board as per Annexure II. Decisions taken in the last meeting were implemented from academic session 2021-22. Members took note of it.

**10.03. To consider and approve the replacement of physics and chemistry courses by computer science courses offered as generic electives in III and IV Semester of B.Sc. (Hons.) Mathematics from Academic year 2022-23. (Annexure-III)**





As per recommendation of committee of courses based on the feedback from stake holders and to enhance employability skills of students, Discrete Mathematics (BSMA329A, 5Credits), Machine Learning (ETCS425A, 4 credits) and Machine Learning Lab (ETCS455A, 1 credit) would be offered as generic elective III in third semester in place of Thermal Physics (BSPH203A, 4 Credits), Thermal Physics Lab (BSPH253A, 2 Credits) ), Solutions, Phase Equilibrium, Conductance, Electrochemistry & Functional Group Organic Chemistry-II and Solutions(BSCH241A, 4 Credits), Phase Equilibrium, Conductance, Electrochemistry & Functional Group Organic Chemistry-II Lab(BSCH267A, 2 Credits).

To empower students with computer skills, Artificial Intelligence (ETCS401A, 4 credits), Artificial Intelligence Lab (ETCS451A, 1 credit), Database Management Systems (ETCS307A, 4 credit ), Database Management Systems Lab(ETCS355A, 1 credit) would be offered in IV semester as Generic Elective IV in place of Elements of Modern Physics (BSPH204A, 4 credits), Elements of Modern Physics Lab (BSPH254A, 1 credit), Green Chemistry: Designing Chemistry For Human Health And Environment (BSCH242A, 4 credits), Green Chemistry: Designing Chemistry For Human Health And Environment Lab (BSCH268A, 1 credit ).

Members considered and approved the changes as tabulated below. The syllabus of Discrete Mathematics (BSMA329A/5Credits) was approved in the meeting as per annexure while syllabus of computer related courses have been approved in BOS of School of Engineering and Technology.

Existing Course Name	Existing Course Code (Credits)	Course Offered in Semester	New course Introduced	New Course Code (Credits)	Course Offered in Semester
Thermal Physics and	BSPH203A (4 Credits)	III	Discrete Mathematics	BSMA329A (5Credits)	III
Thermal Physics Lab	BSPH253A (2 Credits)	III	Machine Learning	ETCS425A, (4 Credits)	III
Solutions, Phase Equilibrium, Conductance, Electrochemistry & Functional Group Organic Chemistry-II	BSCH241A (4 Credits)	III	Machine Learning Lab	ETCS455A, (1 Credit)	III





Solutions, Equilibrium, Conductance, Electrochemistry & Functional Group Organic Chemistry-II Lab	Phase	BSCH267A (2 Credits)	III			
Elements of Modern Physics		(BSPH204A, 4 Credits),	IV	Artificial Intelligence	ETCS401A, (4 Credits)	IV
Elements of Modern Physics Lab		(BSPH254A, 1 Credit),	IV	Artificial Intelligence Lab	ETCS451A, (1 Credit)	IV
Green Chemistry: Designing Chemistry For Human Health And Environment		(BSCH242A, 4 Credits),	IV	Database Management Systems	ETCS307A, (4 Credit )	IV
Green Chemistry: Designing Chemistry For Human Health And Environment Lab		BSCH268A (1 Credit)	IV	Database Management Systems Lab	ETCS355A, (1 Credit)	IV

Revised Scheme of Studies is attached herewith along with feedback analysis report , minutes of meeting of Committee of Courses and approved syllabi (Annexure-III)

**10.04. To consider and approve the inclusion of new Discipline specific elective courses and their syllabi in the pool of electives offered in V and VI Semester of B.Sc. (Hons.) Mathematics from Academic Session 2022-23**

To enhance research skill of undergraduate students, inclusion of courses namely Dynamic (BSMA327A, 6 Credits), as Discipline Specific Elective I and II and Mathematical Modelling (BSMA338A, 6 Credits) as Discipline Specific Elective III in the pool of electives was proposed. The proposal was accepted and approved as per annexure -III.

After going through the curriculum, members suggested modification and reduction in credit weightage of the course Probability and Statistics Lab (BSMA277A, credit 1).

**10.05. To approve the introduction of MOOC in 3<sup>rd</sup> semester of B.Sc. (Hons.) Chemistry, B.Sc. (Hons.) Physics and B.Sc. (Hons.) Mathematics from academic year 2022-23**

As per UGC guidelines regarding registration of students in MOOC Courses offered by Swayam, EPG Pathshala, NPTEL etc., it was decided that MOOC of two credits will be offered

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to undergraduate students in third semester. Two identified courses to be offered in 2022 are Plastic Waste Management (Offered by Swaayam, Credits 2) and Data Based Management System (Offered by Swaayam, Credits 2) and students can choose any one. Agenda was approved in the meeting (Annexure-IV).

**10.06. To approve the introduction of internship in 4<sup>th</sup> semester of B.Sc. (Hons.) Mathematics, B.Sc. (Hons.) Chemistry and B.Sc. (Hons.) Physics from academic year 2022-23**

As per NEP guidelines and to promote skill development & industry academia interaction, it was decided that internship (credits 2) would be offered in 4<sup>th</sup> semester for undergraduate students of Physics, Chemistry and Mathematics. Students would either go to industry or academic organization for project work or field project during summer vacation and submit the report in 5<sup>th</sup> semester which would be assessed.

After the introduction of internship and MOOC courses, total credits offered for B.Sc. (Hons.) Chemistry 2022-25 Batch are 163; B. Sc. (Hons.) Physics 2022-25 Batch are 155 and B.Sc. (Hons.) Mathematics 2022-25 Batch are 148 (Annexure-III, V& VI).

**10.07. To approve the syllabus of Value Added Course on Ancient Sciences in odd semester from academic year 2022-23**

School of Basic and Applied Sciences proposes to offer Value Added Course on Ancient Sciences (30 hours duration) in odd semester and Understanding of Research (Reported in BOS MOM 2021) (30 hours duration) in even semester to PAN University students. The syllabus was placed before the committee and was approved (Annexure-VII). VAC is highlighted in the course structure in Annexures III, V and VI.

**10.08. To consider and approve the Scheme of Studies and syllabi of B.Sc. (Hons.) Forensic Science Program to be offered from 2022-23**

It was proposed that B.Sc. (Hons.) Forensic Science program would be offered from academic year 2022-23. The approval of this program (Memo No 18/120-2021UNP (5) was received from Higher Education Department on 15/6/2021. The proposed program would be of three years duration having total credits 150. As per recommendations received from committee of courses and survey feedback, the Scheme of Studies and syllabi was placed before the committee and was approved as per Annexure VIII (Scheme of Studies, Syllabus, Concept Note, and White Paper on B.Sc. (Hons.) Forensic Science, Approval from Higher Education).





**10.09. To approve the list of paper setters, moderators, evaluators and practical examiners for B.Sc. (Hons.) Forensic Science**

List of paper setters, moderators, evaluators and practical examiners for B.Sc. (Hons.) Forensic Science was placed before the committee which was approved as per Annexure IX.

**10.10. To report action taken on the feedback obtained from the stakeholders**

The feedback received from various stakeholders i.e. students, faculty, industry experts, parents and alumni were discussed, and the action taken report was placed before the committee as per annexure X. The members noted the same.

**10.11. To approve minor revisions in Medicinal Chemistry (BSCH305A), Disaster Management (UCDM301A) and Environmental Studies (UCES125A)**

As a part of the discussion in the committee of courses, it emerged out that application of Artificial Intelligence in drug delivery and development needs to be included in the Medicinal Chemistry (BSCH305A) course which is offered to students of B.Sc. (Hons.) Chemistry.

Applications of AI and ML in Disaster Management and risk predictions need to be included in Disaster Management (UCDM301A), which is offered as ability enhancement course to undergraduate students.

As per the global trend, concept of Environment Social Governance and Carbon Footprints needs to be introduced in Environmental Studies UCES125A, which is offered as ability enhancement course to undergraduate students.

The above was deliberated by the board and subsequently approved.

(Revised syllabi are highlighted in the Handbooks of Physics, Chemistry, Mathematics and Forensic Sciences-Annexure XI).


The meeting ended with a vote of thanks to the Chair.

**Signatory:**

Prof. P.C. Jha (External Expert, Mathematics)

Prof. G.S. Sodhi (External Expert, Forensic Science)

Prof. Sunil Kumar (External Expert Physics)

  
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Prof. Raj Kishore Sharma (External Expert, Chemistry)

*Meena*

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