

# AMITY SCHOOL OF APPLIED SCIENCES

## **FLEXILEARN**

-Freedom to design your degree



## **PROGRAMME STRUCTURES**

**2020**

**AMITY UNIVERSITY HARYANA**

**GURUGRAM**

# 13558 B.Sc. (Honors) Chemistry (Total Credits-150)

## Programme Structure-2020

### FIRST SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
CHY2101	Inorganic Chemistry-I	2	1	-	3
CHY2102	Organic Chemistry-I	2	1	-	3
CHY2105	Applied Mathematics-I	2	-	-	2
CHY2106	Physics-I	2	-	-	2
CHY2103	Inorganic Chemistry Lab-I	-	-	2	1
CHY2104	Organic Chemistry Lab-I	-	-	2	1
CHY2107	Physics Lab-I	-	-	2	1
<b>Open Electives</b>					<b>7*+3</b>
LAN2151	Foreign Language-I* French-I	3	-	-	3
LAN2152	German-I				
LAN2153	Spanish-I				
LAN2154	Russian-I				
LAN2155	Chinese-I				
LAN2156	Portuguese-I				
LAN2157	Korean-I				
LAN2158	Japanese-I				
LAN2159	Hindi-I **				
CSS2151	Effective Listening *	1	-	-	1
BEH2151	Understanding Self for Effectiveness*	1	-	-	1
ENV2151	Environmental Studies-I*	2	-	-	2
	Minor Track Course (Flexi)	-	-	-	3
<b>TOTAL</b>					<b>23</b>

\*\* Hindi as Foreign Language for Foreign National Students

### SECOND SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
CHY2201	Physical Chemistry-I	2	1	-	3
CHY2202	Analytical Chemistry	2	1	-	3
CHY2205	Applied Mathematics-II	2	-	-	2
CHY2206	Physics-II	2	-	-	2
CHY2203	Physical Chemistry Lab-I	-	-	2	1

CHY2204	Analytical Chemistry Lab	-	-	2	1
CHY2207	Physics Lab-II	-	-	2	1
<b>Open Electives</b>					<b>7*+3</b>
LAN2251	Foreign Language-II*	3	-	-	3
LAN2251	French-II				
LAN2252	German-II				
LAN2253	Spanish-II				
LAN2254	Russian-II				
LAN2255	Chinese-II				
LAN2256	Portuguese-II				
LAN2257	Korean-II				
LAN2258	Japanese-II				
LAN2259	Hindi-II				
CSS2251	Presentation Skills *	1	-	-	1
BEH2251	Problem Solving and Creative Thinking*	1	-	-	1
ENV2251	Environmental Studies-II*	2	-	-	2
	Minor Track Course (Flexi)	-	-	-	<b>3</b>
<b>TOTAL</b>					<b>23</b>

### THIRD SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
CHY2301	Inorganic Chemistry-II	2	1	-	3
CHY2302	Organic Chemistry-II	2	1	-	3
CHY2303	Physical Chemistry-II	2	1	-	3
CHY2304	Biochemistry	2	1	-	3
CHY2305	Inorganic Chemistry Lab-II	-	-	2	1
CHY2306	Organic Chemistry Lab-II	-	-	2	1
CHY2307	Physical Chemistry Lab-II	-	-	2	1
<b>Concentration Electives</b>					<b>3</b>
CHY2308	Industrial Chemistry	2	1	-	3
CHY2309	Bioinorganic Chemistry	2	1	-	3
<b>Open Electives</b>					<b>4*+3</b>
LAN2351	Foreign Language-III*	2	-	-	2
LAN2351	French-III				
LAN2352	German-III				
LAN2353	Spanish-III				
LAN2354	Russian-III				
LAN2355	Chinese-III				
LAN2356	Portuguese-III				
LAN2357	Korean-III				
LAN2358	Japanese-III				
LAN2359	Hindi-III				

CSS2351	Reading & Comprehension *	1	-	-	1
BEH2351	Group Dynamics and Team Building*	1	-	-	1
	Minor Track Course (Flexi)	-	-	-	3
	<b>TOTAL</b>				<b>25</b>

## FOURTH SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
CHY2401	Inorganic Chemistry-III	2	1	-	3
CHY2402	Organic Chemistry-III	2	1	-	3
CHY2403	Physical Chemistry-III	2	1	-	3
CHY2404	Polymer Chemistry	2	1	-	3
CHY2405	Inorganic Chemistry Lab-III	-	-	2	1
CHY2406	Organic Chemistry Lab-III	-	-	2	1
CHY2407	Physical Chemistry Lab-III	-	-	2	1
<b>Concentration Electives</b>					<b>3</b>
CHY2408	Green Chemistry	2	1	-	3
CHY2409	Agricultural Chemistry	2	1	-	3
CHY2431	Term Paper & Workshop	-	-	-	3
CHY2432	Project (with Presentation & Evaluation)	-	-	-	3
<b>Open Electives</b>					<b>4*+3</b>
LAN2451	Foreign Language-IV* French-IV	2	-	-	2
LAN2452	German-IV				
LAN2453	Spanish-IV				
LAN2454	Russian-IV				
LAN2455	Chinese-IV				
LAN2456	Portuguese-IV				
LAN2457	Korean-IV				
LAN2458	Japanese-IV				
LAN2459	Hindi-IV				
CSS2451	Corporate Communication *	1	-	-	1
BEH2451	Stress and Coping Strategies*	1	-	-	1
	Minor Track Course (Flexi)	-	-	-	3
	<b>TOTAL</b>				<b>25</b>

**SUMMER PROJECT****FIFTH SEMESTER**

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
CHY2501	Inorganic Chemistry-IV	2	1	-	3
CHY2502	Organic Chemistry-IV	2	1	-	3
CHY2503	Physical Chemistry-IV	2	1	-	3
CHY2504	Inorganic Chemistry Lab-IV	-	-	2	1
CHY2505	Organic Chemistry Lab-IV	-	-	2	1
CHY2506	Physical Chemistry Lab-IV	-	-	2	1
CHY2535	Summer Project Evaluation/ Study Abroad Programme	-	-	-	6
<b>Concentration Electives</b>					<b>3</b>
CHY2507	Food & Nutrition Chemistry	2	1	-	3
CHY2508	Quantum Chemistry	2	1	-	3
CHY2509	Technical Writing in Science-I& Workshop	-	-	-	3
CHY2531	Term Paper& Workshop	-	-	-	3
<b>Open Electives</b>					<b>4*+3</b>
LAN2551	Foreign Language-V* French-V	2	-	-	2
LAN2552	German-V				
LAN2553	Spanish-V				
LAN2554	Russian-V				
LAN2555	Chinese-V				
LAN2556	Portuguese-V				
LAN2557	Korean-V				
LAN2558	Japanese-V				
LAN2559	Hindi-V				
CSS2551	Employability Skills *				
BEH2551	Individual ,Society and Nations*	1	-	-	1
	Minor Track Course (Flexi)	-	-	-	<b>3</b>
<b>TOTAL</b>					<b>28</b>

**SIXTH SEMESTER**

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
CHY2601	Inorganic Chemistry-V	2	1	-	3
CHY2602	Organic Chemistry-V	2	1	-	3
CHY2603	Physical Chemistry-V	2	1	-	3

CHY2604	Spectroscopy	2	1	-	3
CHY2605	Basics of Computer Programming in C and its Application in Chemistry	2	-	-	2
CHY2606	Inorganic Chemistry Lab-V	-	-	2	1
CHY2607	Organic Chemistry Lab-V	-	-	2	1
CHY2608	Physical Chemistry Lab-V	-	-	2	1
CHY2609	Programming in C Lab	-	-	2	1
<b>Concentration Electives</b>					<b>3</b>
CHY2610	Material Chemistry	2	1	-	3
CHY2611	Nanochemistry	2	1	-	3
CHY2612	Technical Writing in Science-II& Workshop	-	-	-	3
CHY2631	Term Paper& Workshop	-	-	-	3
CHY2632	Project (with Presentation & Evaluation)	-	-	-	3
<b>Open Electives</b>					<b>2*+3</b>
CSS2651	Workplace Communication *	1	-	-	1
BEH2651	Interpersonal Communication and Relationship Management*	1	-	-	1
	Minor Track Course (Flexi)	-	-	-	<b>3</b>
<b>TOTAL</b>					<b>26</b>

# 13556 B.Sc. (Honors) Mathematics (Total Credits-150)

## Programme Structure-2020

### FIRST SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
MTH2101	Differential Calculus	3	1	-	4
MTH2107	Classical Algebra	3	1	-	4
MTH2108	Integral Calculus	3	1	-	4
MTH2110	Physics	4	-	-	4
<b>Open Electives</b>					<b>7*+3</b>
LAN2151	Foreign Language-I*	3	-	-	3
LAN2152	French-I				
LAN2153	German-I				
LAN2154	Spanish-I				
LAN2155	Russian-I				
LAN2156	Chinese-I				
LAN2157	Portuguese-I				
LAN2158	Korean-I				
LAN2159	Japanese-I				
LAN2159	Hindi-I **				
CSS2151	Effective Listening*	1	-	-	1
BEH2151	Understanding Self for Effectiveness*	1	-	-	1
ENV2151	Environmental Studies* -I	2	-	-	2
	Minor Track Course (Flexi)	-	-	-	3
<b>TOTAL</b>					<b>26</b>

\*\* Hindi as Foreign Language for Foreign National Students

### SECOND SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
MTH2205	Ordinary Differential Equations	3	1	-	4
MTH2209	Groups & Ring Theory	3	1	-	4
MTH2212	Vector Calculus	2	1	-	3
MTH2213	Chemistry	3	-	-	3
MTH2214	Computer Fundamentals	-	-	4	2
<b>Open Electives</b>					<b>7*+3</b>

LAN2251	Foreign Language – II*	3	-	-	3
LAN2252	French- II				
LAN2253	German-II				
LAN2254	Spanish-II				
LAN2255	Russian-II				
LAN2256	Chinese-II				
LAN2257	Portuguese-II				
LAN2258	Korean-II				
LAN2259	Japanese-II				
LAN2259	Hindi-II				
CSS2251	Presentation Skills *	1	-	-	1
BEH2251	Problem Solving and Creative Thinking*	1	-	-	1
ENV2251	Environmental Studies*-II	2	-	-	2
	Minor Track Course (Flexi)	-	-	-	3
	<b>TOTAL</b>				<b>26</b>

### THIRD SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
MTH2303	Partial Differential Equations	3	1	-	4
MTH2318	Introduction to C Programming	2	-	-	2
MTH2319	C Programming Lab	-	-	4	2
MTH2320	Analytical Geometry	3	1	-	4
MTH2321	Statistics	3	1	-	4
MTH2322	Real Analysis-I	3	1	-	4
<b>Open Electives</b>					<b>4*+3</b>
LAN2351	Foreign Language-III*	2	-	-	2
LAN2352	French-III				
LAN2353	German-III				
LAN2354	Spanish-III				
LAN2355	Russian-III				
LAN2356	Chinese-III				
LAN2357	Portuguese-III				
LAN2358	Korean-III				
LAN2359	Japanese-III				
LAN2359	Hindi-III				
CSS2351	Reading and Comprehension*	1	-	-	1
BEH2351	Group Dynamics and Team Building*	1	-	-	1
	Minor Track Course (Flexi)	-	-	-	3
	<b>TOTAL</b>				<b>27</b>

## FOURTH SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
MTH2413	Numerical Methods	3	-	-	3
MTH2414	Numerical Methods Lab	-	-	2	1
MTH2415	Linear Algebra	3	1	-	4
MTH2420	Complex Analysis	3	1	-	4
MTH2421	Real Analysis-II	3	1	-	4
<b>Open Electives</b>					<b>4*+3</b>
LAN2451	Foreign Language-IV* French-IV	2	-	-	2
LAN2452	German-IV				
LAN2453	Spanish-IV				
LAN2454	Russian-IV				
LAN2455	Chinese-IV				
LAN2456	Portuguese-IV				
LAN2457	Korean-IV				
LAN2458	Japanese-IV				
LAN2459	Hindi-IV				
CSS2451	Corporate Communication*				
BEH2451	Stress and Coping Strategies*	1	-	-	1
	Minor Track Course (Flexi)	-	-	-	<b>3</b>
<b>TOTAL</b>					<b>23</b>

## SUMMER WORKSHOP/ SAP

In summer break, a student can either opt for study abroad programme (SAP) or participate in two-week summer workshop which will be scheduled tentatively in the week following the last end-semester exam. The exact workshop dates will be notified before the commencement of end-semester examination. The students opting for SAP are requested to contact the office of International Affairs for further details.

## FIFTH SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credit
MTH2503	Mechanics	3	1	-	4
MTH2504	Operations Research	3	1	-	4
MTH2520	Scientific Computing	-	-	4	2
MTH2535	Summer Workshop/ Study Abroad Programme	-	-	-	6
<b>Concentration Electives</b>					<b>3</b>
MTH2515	Mathematical Modeling	2	1	-	3
MTH2518	Fuzzy Sets and Fuzzy Logic	2	1	-	3

MTH2519	R Programming and SAS	2	1	-	3
MTH2521	Digital Electronics	2	1	-	3
<b>Open Electives</b>					<b>4*+3</b>
LAN2551	Foreign Language-V*	2	-	-	2
LAN2552	French-V				
LAN2553	German-V				
LAN2554	Spanish-V				
LAN2555	Russian-V				
LAN2556	Chinese-V				
LAN2557	Portuguese-V				
LAN2558	Korean-V				
LAN2559	Japanese-V				
LAN2559	Hindi-V				
CSS2551	Employability Skills*	1	-	-	1
BEH2551	Individual ,Society and Nations*	1	-	-	1
	Minor Track Course (Flexi)	-	-	-	<b>3</b>
<b>TOTAL</b>					<b>26</b>

## SIXTH SEMESTER

<b>Course Code</b>	<b>Course Title</b>	<b>Lectures (L) Hours Per Week</b>	<b>Tutorial (T) Hours Per Week</b>	<b>Practical (P) Hours Per Week</b>	<b>Total Credits</b>
MTH2615	Special Functions & Integral Transforms	3	1	-	4
MTH2620	Discrete Mathematics	2	1	-	3
MTH2621	Metric Space	3	1	-	4
<b>Concentration Electives (Select Any Two)</b>					<b>6</b>
MTH2603	Financial Mathematics	2	1	-	3
MTH2611	Number Theory	2	1	-	3
MTH2618	Functional Analysis	2	1	-	3
MTH2619	Introduction to Statistical Inference	2	1	-	3
<b>Open Electives</b>					<b>(2*+3)</b>
CSS2651	Workplace Communication*	1	-	-	1
BEH2651	Interpersonal Communication and Relationship Management*	1	-	-	1
	Minor Track Course (Flexi)	-	-	-	<b>3</b>
<b>TOTAL</b>					<b>22</b>

# 13557 B.Sc. (Honors) Physics (Total Credits-150)

## Programme Structure-2020

### FIRST SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
PHY2101	Mechanics	2	1	-	3
PHY2102	Waves & Oscillations	2	1	-	3
PHY2104	Physics Lab-I	-	-	4	2
PHY2105	Applied Mathematics-I	2	1	-	3
PHY2106	Applied Chemistry-I	2	-	-	2
PHY2107	Applied Chemistry Lab-I	-	-	2	1
PHY2108	Properties of Matter	2	1	-	3
<b>Open Electives</b>					<b>7*+3</b>
LAN2151	Foreign Language-I* French-I	3	-	-	3
LAN2152	German-I				
LAN2153	Spanish-I				
LAN2154	Russian-I				
LAN2155	Chinese-I				
LAN2156	Portuguese-I				
LAN2157	Korean-I				
LAN2158	Japanese-I				
LAN2159	Hindi-I **				
CSS2151	Effective Listening *	1	-	-	1
BEH2151	Understanding Self for Effectiveness*	1	-	-	1
ENV2151	Environmental Studies-I*	2	-	-	2
	Minor Track Course (Flexi)	-	-	-	<b>3</b>
	<b>TOTAL</b>				<b>27</b>

\*\* Hindi as Foreign Language for Foreign National Students

### SECOND SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
PHY2201	Thermodynamics	2	1	-	3
PHY2202	Optics	2	1	-	3
PHY2203	Mathematical Physics-I	2	1	-	3
PHY2204	Physics Lab-II	-	-	4	2

PHY2205	Applied Mathematics-II	2	1	-	3
PHY2206	Applied Chemistry-II	2	-	-	2
PHY2207	Applied Chemistry Lab-II	-	-	2	1
<b>Open Electives</b>					<b>7*+3</b>
LAN2251	Foreign Language-II* French-II	3	-	-	3
LAN2252	German-II				
LAN2253	Spanish-II				
LAN2254	Russian-II				
LAN2255	Chinese-II				
LAN2256	Portuguese-II				
LAN2257	Korean-II				
LAN2258	Japanese-II				
LAN2259	Hindi-II				
CSS2251	Presentation Skills *				
BEH2251	Problem Solving and Creative Thinking*	1	-	-	1
ENV2251	Environmental Studies-II*	2	-	-	2
	Minor Track Course (Flexi)	-	-	-	<b>3</b>
<b>TOTAL</b>					<b>27</b>

### THIRD SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
PHY2301	Electricity & Magnetism	2	1	-	3
PHY2303	Analog Electronics	2	1	-	3
PHY2304	Physics Lab-III	-	-	4	2
PHY2308	Mathematical Physics-II	2	1	-	3
PHY2309	Classical Mechanics	2	1	-	3
<b>Concentration Electives</b>					<b>3</b>
PHY2306	Computer programming in C	2	1	-	3
PHY2331	Term Paper & Workshop	-	-	-	3
<b>Open Electives</b>					<b>4*+3</b>
LAN2351	Foreign Language-III* French-III	2	-	-	2
LAN2352	German-III				
LAN2353	Spanish-III				
LAN2354	Russian-III				
LAN2355	Chinese-III				
LAN2356	Portuguese-III				
LAN2357	Korean-III				
LAN2358	Japanese-III				
LAN2359	Hindi-III				

CSS2351	Reading & Comprehension *	1	-	-	1
BEH2351	Group Dynamics and Team Building*	1	-	-	1
	Minor Track Course (Flexi)	-	-	-	<b>3</b>
	<b>TOTAL</b>				<b>24</b>

## FOURTH SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
PHY2404	Physics Lab-IV	-	-	4	2
PHY2407	Electrodynamics	2	1	-	3
PHY2408	Statistical Mechanics	2	1	-	3
PHY2410	Quantum Mechanics	2	1	-	3
PHY2411	Digital Electronics	2	1	-	3
<b>Concentration Electives</b>					<b>3</b>
PHY2406	Laser Physics	2	1	-	3
PHY2412	Special Theory of Relativity	2	1	-	3
PHY2431	Term Paper & Workshop	-	-	-	3
<b>Open Electives</b>					<b>4*+3</b>
LAN2451	Foreign Language-IV* French-IV	2	-	-	2
LAN2452	German-IV				
LAN2453	Spanish-IV				
LAN2454	Russian-IV				
LAN2455	Chinese-IV				
LAN2456	Portuguese-IV				
LAN2457	Korean-IV				
LAN2458	Japanese-IV				
LAN2459	Hindi-IV				
CSS2451	Corporate Communication*	1	-	-	1
BEH2451	Stress and Coping Strategies*	1	-	-	1
	Minor Track Course (Flexi)	-	-	-	<b>3</b>
	<b>TOTAL</b>				<b>24</b>

## SUMMER PROJECT FIFTH SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
PHY2503	Nuclear & Particle Physics	2	1	-	3
PHY2504	Physics Lab-V	-	-	4	2
PHY2506	Solid State Physics	2	1	-	3
PHY2508	Applied Mathematics-III	3	-	-	3

PHY2509	Applied Mathematics-III Lab	-	-	2	1
PHY2510	Atomic & Molecular Physics	2	1	-	3
PHY2535	Summer Project Evaluation/ Study Abroad Programme	-	-	-	3
<b>Concentration Electives</b>					<b>3</b>
PHY2512	Introduction to MATLAB	2	1	-	3
PHY2513	Semiconductor Physics	2	1	-	3
PHY2531	Term Paper& Workshop	-	-	-	3
<b>Open Electives</b>					<b>4*+3</b>
LAN2551	Foreign Language-V*	2	-	-	2
LAN2551	French-V				
LAN2552	German-V				
LAN2553	Spanish-V				
LAN2554	Russian-V				
LAN2555	Chinese-V				
LAN2556	Portuguese-V				
LAN2557	Korean-V				
LAN2558	Japanese-V				
LAN2559	Hindi-V				
CSS2551	Employability Skills *	1	-	-	1
BEH2551	Individual ,Society and Nations*	1	-	-	1
	Minor Track Course (Flexi)	-	-	-	<b>3</b>
<b>TOTAL</b>					<b>28</b>

## SIXTH SEMESTER

Course Code	Course Title	Lectures (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
PHY2606	Introduction to Nanotechnology	2	1	-	3
PHY2607	Accelerators and Detectors	2	1	-	3
PHY2609	Mathematical Physics-III	2	1	-	3
PHY2610	Instrumentation Techniques	2	1	-	3
<b>Concentration Electives</b>					<b>3</b>
PHY2605	Low Temperature Physics and Superconductivity	2	1	-	3
PHY2611	Introduction to Astronomy	2	1	-	3
PHY2631	Term Paper& Workshop	-	-	-	3
PHY2634	Study Abroad	-	-	-	3
<b>Open Electives</b>					<b>2*+3</b>
CSS2651	Workplace Communication *	1	-	-	1

BEH2651	Interpersonal Communication and Relationship Management*	1	-	-	1
	Minor Track Course (Flexi)	-	-	-	<b>3</b>
	<b>TOTAL</b>				<b>20</b>

# 13059 B.Sc. (Honors) Forensic Science (Total Credits-150)

## Programme Structure-2020

### FIRST SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
FCH2102	Introduction to Forensic Science	2	-	-	2
FCH2103	Fundamentals of Crime Scene Investigation	2	-	-	2
FCH2104	Biology	2	-	-	2
FCH2105	Applied Mathematics	2	-	-	2
FCH2107	Human Anatomy and Physiology	2	1	-	3
FCH2108	Crime Scene Investigation Lab	-	-	4	2
FCH2109	Chemistry-I (Basic)	2	1	-	3
<b>Open Electives</b>					<b>7*+3</b>
LAN2151	Foreign Language -I*	3	-	-	3
LAN2152	French- I				
LAN2153	German-I				
LAN2154	Spanish-I				
LAN2155	Russian-I				
LAN2156	Chinese-I				
LAN2157	Portuguese-I				
LAN2158	Korean-I				
LAN2159	Japanese-I				
LAN2159	Hindi-I **				
CSS2151	Effective Listening *	1	-	-	1
BEH2151	Understanding Self for Effectiveness*	1	-	-	1
ENV2151	Environmental Studies-I*	2	-	-	2
	Minor Track Course (Flexi)	-	-	-	3
<b>TOTAL</b>					<b>26</b>

\*\* Hindi as Foreign Language for Foreign National Students

### SECOND SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
FCH2201	Physical Evidence in Forensic Science	2	-	-	2

FCH2202	Fingerprint Science	2	1	-	3
FCH2203	Metric System & Physical Properties of Evidences	2	1	-	3
FCH2207	Fingerprinting Lab	-	-	2	1
FCH2208	Metric System Lab	-	-	2	1
FCH2209	Chemistry-II (Inorganic)	2	1	-	3
FCH2210	Physics-I	2	-	-	2
<b>Open Electives</b>					<b>7*+3</b>
LAN2251	Foreign Language – II* French- II	3	-	-	3
LAN2252	German-II				
LAN2253	Spanish-II				
LAN2254	Russian-II				
LAN2255	Chinese-II				
LAN2256	Portuguese-II				
LAN2257	Korean-II				
LAN2258	Japanese-II				
LAN2259	Hindi-II				
CSS2251	Presentation Skills *	1	-	-	1
BEH2251	Problem Solving and Creative Thinking*	1	-	-	1
ENV2251	Environmental Studies-II*	2	-	-	2
	Minor Track Course (Flexi)	-	-	-	<b>3</b>
<b>TOTAL</b>					<b>25</b>

### THIRD SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
FCH2302	Forensic Serology	2	1	-	3
FCH2311	Forensic Serology Lab	-	-	4	2
FCH2312	Questioned Documents-I	2	1	-	3
FCH2313	Research Methodology and Statistics	2	1	-	3
FCH2314	Chemistry-III (Physical)	2	1	-	3
<b>Concentration Electives</b>					<b>3</b>
FCH2308	Crime Scenario in India	2	1	-	3
FCH2315	Cyber Forensics	2	1	-	3
<b>Open Electives</b>					<b>4*+3</b>

LAN2351	Foreign Language – III*	2	-	-	2
LAN2352	French- III				
LAN2353	German-III				
LAN2354	Spanish-III				
LAN2355	Russian-III				
LAN2356	Chinese-III				
LAN2357	Portuguese-III				
LAN2358	Korean-III				
LAN2359	Japanese-III				
LAN2359	Hindi-III				
CSS2351	Reading & Comprehension *	1	-	-	1
BEH2351	Group Dynamics and Team Building*	1	-	-	1
	Minor Track Course (Flexi)	-	-	-	<b>3</b>
	<b>TOTAL</b>				<b>24</b>

#### FOURTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
FCH2402	Fundamentals of Forensic Photography	2	1	-	3
FCH2403	Forensic Anthropology	2	1	-	3
FCH2410	Forensic Anthropology Lab	-	-	2	1
FCH2412	Questioned Documents-II	2	1	-	3
FCH2413	Chemistry-IV (Organic)	2	1	-	3
FCH2414	Questioned Documents Lab	-	-	2	1
<b>Concentration Electives</b>					<b>3</b>
FCH2415	Wildlife Forensics	2	1	-	3
FCH2416	Physics-II	2	1	-	3
FCH2431	Term Paper	-	-	-	2
FCH2432	Project (with Presentation & Evaluation)	-	-	-	3
FCH2433	Workshop / Certification (Discipline Specific) (1credit per workshop)	-	-	-	1
<b>Open Electives</b>					<b>4*+3</b>

LAN2451	Foreign Language – IV*	2	-	-	2
LAN2452	French- IV				
LAN2453	German-IV				
LAN2454	Spanish-IV				
LAN2455	Russian-IV				
LAN2456	Chinese-IV				
LAN2457	Portuguese-IV				
LAN2458	Korean-IV				
LAN2459	Japanese-IV				
LAN2459	Hindi-IV				
CSS2451	Corporate Communication *	1	-	-	1
BEH2451	Stress and Coping Strategies*	1	-	-	1
	Minor Track Course (Flexi)	-	-	-	<b>3</b>
	<b>TOTAL</b>				<b>24</b>

### SUMMER INTERNSHIP

Students must submit their summer internship report immediately on return from summer break in June/ July and the same would be evaluated for 6 credit units, which would be included in the Third Semester marks.

### FIFTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
FCH2502	DNA Fingerprinting	2	1	-	3
FCH2505	Instrumentation- Biological	1	-	-	1
FCH2511	DNA Fingerprinting Lab	-	-	2	1
FCH2513	Microscopy	2	-	-	2
FCH2514	Chemistry-V (Toxicology)	2	1	-	3
FCH2515	Forensic Toxicology Lab	-	-	2	1
FCH2535	Summer Internship Evaluation/ Study Abroad Programme	-	-	-	6
<b>Concentration Electives</b>					<b>3</b>
FCH2509	Technical Writing in Science-I	2	-	-	2
FCH2516	Arson and Explosive	2	1	-	3
FCH2517	Quality Management and Ethics	2	1	-	3
FCH2531	Term Paper	-	-	-	2
FCH2533	Workshop / Certification (Discipline Specific) <b>(1credit per workshop)</b>	-	-	-	1
<b>Open Electives</b>					<b>4*+3</b>
LAN2551	Foreign Language-V*	2	-	-	2
LAN2552	French-V				
LAN2553	German-V				
LAN2554	Spanish-V				
LAN2555	Russian-V				
LAN2555	Chinese-V				

LAN2556	Portuguese-V				
LAN2557	Korean-V				
LAN2558	Japanese-V				
LAN2559	Hindi-V				
CSS2551	Employability Skills *	1	-	-	1
BEH2551	Individual ,Society and Nations*	1	-	-	1
	Minor Track Course (Flexi)	-	-	-	3
	<b>TOTAL</b>				<b>27</b>

## SIXTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
FCH2613	Criminology, Criminal Law & Police Administration	2	1	-	3
FCH2616	Forensic Medicine	2	1	-	3
FCH2617	Ballistics	2	1	-	3
FCH2618	Chemistry-VI (Physical and Chemical)	2	1	-	3
FCH2619	Ballistics Lab	-	-	2	1
<b>Concentration Electives</b>					<b>3+3 (6)</b>
FCH2610	Forensic Psychology	2	1	-	3
FCH2620	Physics-III	2	1	-	3
FCH2612	Technical Writing in Science-II& Workshop	-	-	-	3
FCH2614	Seminar	-	-	-	3
FCH2631	Term Paper& Workshop	-	-	-	3
FCH2632	Minor Project (with Presentation & Evaluation)	-	-	-	3
<b>Open Electives</b>					<b>2*+3</b>
CSS2651	Workplace Communication *	1	-	-	1
BEH2651	Interpersonal Communication and Relationship Management*	1	-	-	1
	Minor Track Course (Flexi)	-	-	-	3
	<b>TOTAL</b>				<b>24</b>

# 13509 Master of Science (Chemistry) (Total Credits-100)

## Programme Structure-2020

### FIRST SEMESTER

Course Code	Course Title	Lectures (L) Hours per week	Tutorial (T) Hours per week	Practical (P) Hours per week	Total Credits
CHY4101	Physical Chemistry	3	1	-	4
CHY4102	Organic Chemistry	3	1	-	4
CHY4109	Inorganic Chemistry	3	1	-	4
CHY4110	Cheminformatics & Bioinformatics	1	1	-	2
CHY4111	Foundations of Biochemistry	1	1	-	2
CHY4112	Cheminformatics & Biochemistry Lab	-	-	2	1
CHY4108	Research Seminar	-	-	-	1
<b>Open Electives</b>					<b>5</b>
CSS4151	Basics of Communication	1	-	-	1
BEH4151	Self Development and Interpersonal skills	1	-	-	1
LAN4151	Foreign Business Language-I	3	-	-	3
LAN4152	French-I				
LAN4153	German-I				
LAN4154	Spanish-I				
LAN4155	Russian-I				
LAN4156	Chinese-I				
LAN4157	Portuguese-I				
LAN4158	Korean-I				
LAN4159	Japanese-I				
LAN4159	Hindi-I **				
<b>TOTAL</b>					<b>23</b>

\*\* Hindi as Foreign Language for Foreign National Students

### SECOND SEMESTER

Course Code	Course Title	Lectures (L) Hours per week	Tutorial (T) Hours per week	Practical (P) Hours per week	Total Credits
CHY4201	Analytical Chemistry	2	1	-	3
CHY4202	Industrial Chemistry	2	1	-	3
CHY4211	Organometallic Chemistry	3	1	-	4
CHY4212	Introduction to Laboratory Safety	1	-	-	1
CHY4213	Spectroscopy	2	1	-	3
CHY4206	Analytical Chemistry Lab	-	-	2	1

CHY4207	Industrial Chemistry Lab	-	-	2	1
CHY4231	Term Paper	-	-	-	1
<b>Open Electives</b>					<b>5</b>
CSS4251	Corporate Communication	1	-	-	1
BEH4251	Behavioral Communication and Relationship Management	1	-	-	1
LAN4251	Foreign Business Language-II	3	-	-	3
LAN4251	French-II				
LAN4252	German-II				
LAN4253	Spanish-II				
LAN4254	Russian-II				
LAN4255	Chinese-II				
LAN4256	Portuguese-II				
LAN4257	Korean-II				
LAN4258	Japanese-II				
LAN4259	Hindi-II				
<b>TOTAL</b>					<b>22</b>

### SUMMER INTERNSHIP

**Note:** Students must submit their summer internship report immediately on return from summer vacation in June/ July and the same would be evaluated for 6 credit units, which would be included in the Third Semester marks.

### THIRD SEMESTER

Course Code	Course Title	Lectures (L) Hours per week	Tutorial (T) Hours per week	Practical (P) Hours per week	Total Credits
CHY4301	Instrumental Methods of Analysis	3	1	-	4
CHY4318	Advanced Organic Chemistry	3	1	-	4
CHY4319	Advanced Physical Chemistry	3	1	-	4
CHY4323	Advanced Inorganic Chemistry	3	1	-	4
CHY4324	Inorganic Chemistry Lab	-	-	4	2
CHY4325	Natural Products & Heterocyclic Chemistry	2	1	-	3
CHY4335	Summer Internship Evaluation/ Study Abroad Programme	-	-	-	6
CHY4320	Instrumentation Workshop	-	-	-	1
<b>Electives (Any One)</b>					<b>3</b>
CHY4304	Drugs and Dyes	2	1	-	3
CHY4305	Advanced Natural Products Chemistry	2	1	-	3
CHY4307	Industrial Management and Safety Processes	2	1	-	3

CHY4308	Advanced Nanochemistry	2	1	-	3
CHY4309	Chemistry of Cosmetics	2	1	-	3
CHY4310	Medicinal Chemistry	2	1	-	3
CHY4311	Polymer Technology	2	1	-	3
CHY4312	Non-Conventional Energy Sources	2	1	-	3
CHY4313	Industrial Waste and Water Treatment	2	1	-	3
CHY4314	Nuclear Chemistry	2	1	-	3
CHY4315	Food Technology	2	1	-	3
CHY4321	Environmental Chemistry	2	1	-	3
CHY4322	Renewable Energy Conversion Systems	2	1	-	3
<b>Open Electives</b>					<b>4</b>
CSS4351	Interpersonal Communication	1	-	-	1
BEH4351	Leading through Teams	1	-	-	1
LAN4351	Foreign Business Language-III French-III	2	-	-	2
LAN4352	German-III				
LAN4353	Spanish-III				
LAN4354	Russian-III				
LAN4355	Chinese-III				
LAN4356	Portuguese-III				
LAN4357	Korean-III				
LAN4358	Japanese-III				
LAN4359	Hindi-III				
<b>TOTAL</b>					<b>35</b>

## FOURTH SEMESTER

Course Code	Course Title	Lectures (L) Hours per week	Tutorial (T) Hours per week	Practical (P) Hours per week	Total Credits
CHY4405	Introduction to Polymeric Materials	2	1	-	3
CHY4407	Chemistry of Nanomaterials	2	-	-	2
CHY4408	Good Laboratory Practices Seminar	-	-	-	1
CHY4105	Physical Chemistry Lab	-	-	4	2
CHY4106	Organic Chemistry Lab	-	-	4	2
CHY4437	Major Project*	-	-	-	10
<b>TOTAL</b>					<b>20</b>

\*Student will be sent to laboratories at universities, national institute and industries for their project based research work during 4<sup>th</sup> semester. At the end of 4<sup>th</sup> semester student will be evaluated on the basis of dissertation followed by presentation of their research work.

# 13510 Master of Science (Mathematics) (Total Credits-100)

## Programme Structure-2020

### FIRST SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
MTH4101	Complex Analysis	3	1	-	4
MTH4102	Real Analysis	3	1	-	4
MTH4105	Computing and C Programming	3	-	-	3
MTH4106	C Programming Lab	-	-	2	1
MTH4109	Ordinary Differential Equations	3	1	-	4
MTH4110	Linear Algebra	3	1	-	4
<b>Open Electives</b>					<b>5</b>
CSS4151	Basics of Communication	1	-	-	1
BEH4151	Self Development and interpersonal Skills	1	-	-	1
LAN4151	Foreign Business Language-I	3	-	-	3
LAN4151	French-I				
LAN4152	German-I				
LAN4153	Spanish-I				
LAN4154	Russian-I				
LAN4155	Chinese-I				
LAN4156	Portuguese-I				
LAN4157	Korean-I				
LAN4158	Japanese-I				
LAN4159	Hindi-I **				
<b>TOTAL</b>					<b>25</b>

\*\* Hindi as Foreign Language for Foreign National Students

### SECOND SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
MTH4205	Topology	3	1	-	4
MTH4206	Statistics Based Lab	-	-	2	1
MTH4213	Partial Differential Equations	3	1	-	4
MTH4215	Introduction to MATLAB	3	-	-	3
MTH4216	MATLAB Programming Lab	-	-	2	1
MTH4217	Operations Research	3	1	-	4
MTH4218	Probability Theory	3	-	-	3
<b>Open Electives</b>					<b>5</b>

CSS4251	Corporate Communication	1	-	-	1
BEH4251	Behavioral Communication and Relationship Management	1	-	-	1
LAN4251	Foreign Business Language-II	3	-	-	3
LAN4251	French-II				
LAN4252	German-II				
LAN4253	Spanish-II				
LAN4254	Russian-II				
LAN4255	Chinese-II				
LAN4256	Portuguese-II				
LAN4257	Korean-II				
LAN4258	Japanese-II				
LAN4259	Hindi-II				
	<b>TOTAL</b>				<b>25</b>

### SUMMER WORKSHOP/ SAP:

In summer break, a student can either opt for study abroad programme (SAP) or participate in one-week summer workshop which will be scheduled tentatively in the week following the last end-semester exam. The exact workshop dates will be notified before the commencement of end-semester examination. The students opting for SAP are requested to contact the office of International Affairs for further details. Evaluation scheme for SAP will be provided by office of International Affairs of the University.

### THIRD SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
MTH4325	Numerical Analysis	3	-	-	3
MTH4326	Abstract Algebra	3	1	-	4
MTH4327	Numerical Analysis Lab	-	-	2	1
MTH4342	Mathematical Methods	4	-	-	4
MTH4335	Summer Workshop/ Study Abroad Programme	-	-	-	3
	<b>Electives (Choose Any TWO)</b>				<b>4+4 (8)</b>
MTH4303	Discrete Mathematical Structures	3	1	-	4
MTH4305	Fuzzy Sets and their Applications	3	1	-	4
MTH4329	Number Theory & Cryptography	3	1	-	4
MTH4340	Tensors and Differential Geometry	3	1	-	4
MTH4341	Statistical Methods	3	1	-	4
	<b>Open Electives</b>				<b>4</b>
CSS4351	Interpersonal Communication	1	-	-	1
BEH4351	Leading through Teams	1	-	-	1
LAN4351	Foreign Business Language-III	2	-	-	2
LAN4351	French-III				
LAN4352	German-III				
LAN4353	Spanish-III				
LAN4354	Russian-III				
LAN4355	Chinese-III				

LAN4356	Portuguese-III				
LAN4357	Korean-III				
LAN4358	Japanese-III				
LAN4359	Hindi-III				
	<b>TOTAL</b>				<b>27</b>

## FOURTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
MTH4409	Fluid Dynamics	3	1	-	4
MTH4411	Mathematical Modeling	3	1	-	4
MTH4433	Workshop *	-	-	-	1
MTH4437	Project	-	-	-	6
	<b>Electives (Choose Any TWO)</b>				<b>4+4 (8)</b>
MTH4402	Functional Analysis	3	1	-	4
MTH4410	Classical Mechanics	3	1	-	4
MTH4412	Biomechanics	3	1	-	4
MTH4413	Coding Theory	3	1	-	4
MTH4414	Stochastic Processes	3	1	-	4
MTH4415	Statistical Inference	3	1	-	4
MTH4416	Numerical Solutions to ODE and PDEs	3	1	-	4
	<b>TOTAL</b>				<b>23</b>

\* Workshop shall be conducted on one of the following topics related to:

(1) Renewable Energy (2) Forensic Science (3) Nanotechnology (4) Cyber Security (5) Environmental Sciences (6) Computational Biology

# 13500 Master of Science (Physics) (Total Credits-100)

## Programme Structure-2020

### FIRST SEMESTER

Course Code	Course Title	Lectures (L) Hours per week	Tutorial (T) Hours per week	Practical (P) Hours per week	Total Credits
PHY4101	Mathematical Physics	3	1	-	4
PHY4102	Classical Mechanics	3	1	-	4
PHY4103	Electronics	3	1	-	4
PHY4109	Quantum Mechanics-I	3	1	-	4
PHY4110	Computational Physics	3	-	2	4
PHY4111	Integrated Physics Lab-I	-	-	6	3
<b>Open Electives</b>					<b>5</b>
CSS4151	Basics of Communication	1	-	-	1
BEH4151	Self Development & Interpersonal Skills	1	-	-	1
LAN4151	Foreign Business Language-I French-I	3	-	-	3
LAN4152	German-I				
LAN4153	Spanish-I				
LAN4154	Russian-I				
LAN4155	Chinese-I				
LAN4156	Portuguese-I				
LAN4157	Korean-I				
LAN4158	Japanese-I				
LAN4159	Hindi-I **				
<b>TOTAL</b>					<b>28</b>

\*\* Hindi as Foreign Language for Foreign National Students

### SECOND SEMESTER

Course Code	Course Title	Lectures (L) Hours per week	Tutorial (T) Hours per week	Practical (P) Hours per week	Total Credits
PHY4202	Statistical Mechanics	3	1	-	4
PHY4208	Quantum Mechanics-II	3	1	-	4
PHY4209	Condensed Matter Physics-I	3	1	-	4
PHY4215	Electrodynamics	3	1	-	4
PHY4216	Atomic and Molecular Physics	3	1	-	4
PHY4212	Integrated Physics Lab-II	-	-	6	3
<b>Open Electives</b>					<b>5</b>
CSS4251	Corporate Communication	1	-	-	1
BEH4251	Behavioral Communication	1	-	-	1

	&Relationship Management				
LAN4251	Foreign Business Language-II	3	-	-	3
LAN4252	French-II				
LAN4253	German-II				
LAN4254	Spanish-II				
LAN4255	Russian-II				
LAN4256	Chinese-II				
LAN4257	Portuguese-II				
LAN4258	Korean-II				
LAN4259	Japanese-II				
	Hindi-II				
	<b>TOTAL</b>				<b>28</b>

### THIRD SEMESTER

Course Code	Course Title	Lectures (L) Hours per week	Tutorial (T) Hours per week	Practical (P) Hours per week	Total Credits
PHY4315	Condensed Matter Physics-II	3	1	-	4
PHY4321	Nuclear & Particle Physics	3	1	-	4
PHY4322	Laser Physics	3	1	-	4
PHY4316	Integrated Physics Lab-III	-	-	6	3
PHY4335	Summer Internship Evaluation/ Study Abroad Programme	-	-	-	3
	<b>Elective Paper (Select any one)</b>				<b>3</b>
PHY4306	Digital Electronics & Microprocessors	3	-	-	3
PHY4307	Material Science	3	-	-	3
PHY4317	Renewable Energy Resources	3	-	-	3
PHY4318	Introduction to Astrophysics	3	-	-	3
PHY4319	Non-linear Dynamics	3	-	-	3
PHY4323	Plasma Physics-I	3	-	-	3
	<b>Open Electives</b>				<b>4</b>
CSS4351	Interpersonal Communication	1	-	-	1
BEH4351	Leading through Teams	1	-	-	1
LAN4351	Foreign Business Language-III	2	-	-	2
LAN4352	French-III				
LAN4353	German-III				
LAN4354	Spanish-III				
LAN4355	Russian-III				
LAN4356	Chinese-III				
LAN4357	Portuguese-III				
LAN4358	Korean-III				
LAN4359	Japanese-III				
	Hindi-III				
	<b>TOTAL</b>				<b>25</b>

## FOURTH SEMESTER

Course Code	Course Title	Lectures (L) Hours per week	Tutorial (T) Hours per week	Practical (P) Hours per week	Total Credits
PHY4410	Experimental Techniques	3	1	-	4
PHY4437	Major Project	-	-	-	9
	<b>Elective Paper (Select any Two)</b>				<b>6</b>
PHY4404	Nano-Science & Technology	3	-	-	3
PHY4405	Atmospheric Physics	3	-	-	3
PHY4406	General Relativity & Cosmology	3	-	-	3
PHY4407	Optical Fibers & Communications	3	-	-	3
PHY4408	Physics of Solar Photovoltaics	3	-	-	3
PHY4409	Biophysics	3	-	-	3
PHY4411	Radiation Physics	3	-	-	3
PHY4412	Plasma Physics-II	3	-	-	3
PHY4413	High Energy Physics	3	-	-	3
	<b>TOTAL</b>				<b>19</b>

# 13011 Master of Science (Forensic Science) (Total Credits-100)

## Programme Structure-2020

### FIRST SEMESTER

Course Code	Course Title	Lectures (L) Hours per week	Tutorial (T) Hours per week	Practical (P) Hours per week	Total Credits
FCH4101	Criminology, Criminal Law, Police Administration	2	1	-	3
FCH4103	Forensic Physics	2	1	-	3
FCH4106	Forensic Ballistics	2	-	-	2
FCH4107	Forensic Physics Lab	-	-	4	2
FCH4108	Crime Scene Investigation (CSI) Lab	-	-	4	2
FCH4111	Forensic and Criminal Investigation	2	1	-	3
FCH4112	Instrumentation (Chemical)	2	1	-	3
FCH4110	Research Seminar	-	-	-	1
<b>Open Electives</b>					<b>5</b>
CSS4151	Basics of Communication	1	-	-	1
BEH4151	Self Development and Interpersonal skills	1	-	-	1
LAN4151	Foreign Business Language-I	3	-	-	3
LAN4152	French-I				
LAN4153	German-I				
LAN4154	Spanish-I				
LAN4155	Russian-I				
LAN4156	Chinese-I				
LAN4157	Portuguese-I				
LAN4158	Korean-I				
LAN4159	Japanese-I				
LAN4159	Hindi-I **				
<b>TOTAL</b>					<b>24</b>

\*\* Hindi as Foreign Language for Foreign National Students

### SECOND SEMESTER

Course Code	Course Title	Lectures (L) Hours per week	Tutorial (T) Hours per week	Practical (P) Hours per week	Total Credits
FCH4201	Forensic Photography	2	-	-	2
FCH4202	Elements of Forensic Medicine and Odontology	2	1	-	3
FCH4205	Questioned Documents	2	1	-	3

FCH4206	Forensic Medicine & Odontology Lab	-	-	4	2
FCH4208	Questioned Documents & Fingerprints Lab	-	-	4	2
FCH4209	Instrumentation (Biological)	2	1	-	3
FCH4210	Fingerprint Science	2	1	-	3
FCH4211	Arson & Explosives	2	1	-	3
FCH4231	Term Paper	-	-	-	1
<b>Open Electives</b>					<b>5</b>
BEH4251	Behavioral Communication and Relationship Management	1	-	-	1
CSS4251	Corporate Communication	1	-	-	1
LAN4251	Foreign Business Language-II	3	-	-	3
LAN4252	French-II				
LAN4253	German-II				
LAN4254	Spanish-II				
LAN4255	Russian-II				
LAN4256	Chinese-II				
LAN4257	Portuguese-II				
LAN4258	Korean-II				
LAN4259	Japanese-II				
LAN4259	Hindi-II				
<b>TOTAL</b>					<b>27</b>

### SUMMER INTERNSHIP

**Note:** Students must submit their summer internship report immediately on return from summer break in June/ July and the same would be evaluated for 6 credit units, which would be included in the Third Semester marks.

### THIRD SEMESTER

Course Code	Course Title	Lectures (L) Hours per week	Tutorial (T) Hours per week	Practical (P) Hours per week	Total Credits
FCH4301	Forensic Chemistry, Toxicology & Pharmacology	2	1	-	3
FCH4302	Forensic Biology & Serology	2	1	-	3
FCH4304	Forensic Biology and Serology Lab	-	-	4	2
FCH4305	Forensic Chemistry & Toxicology Lab	-	-	4	2
FCH4315	Statistics & Research Methodology	2	1	-	3
FCH4316	Instrumentation (Physical)	2	1	-	3
FCH4318	Instrumentation Workshop	-	-	-	1
FCH4335	Summer Internship Evaluation/ Study Abroad Programme	-	-	-	6

<b>Electives (Any TWO)</b>					<b>3+3 (6)</b>
FCH4306	Advanced Forensic Biology & Anthropology	2	1	-	3
FCH4317	Cyber Forensic & Computer Application	2	1	-	3
FCH4319	Forensic Genetics	2	1	-	3
FCH4310	Advanced Questioned Documents & Fingerprint Examination	2	1	-	3
FCH4320	Advanced Forensic Chemistry and Toxicology	2	1	-	3
FCH4321	Forensic Wildlife and Entomology	2	1	-	3
<b>Open Electives</b>					<b>4</b>
CSS4351	Interpersonal Communication	1	-	-	1
BEH4351	Leading Through Teams	1	-	-	1
LAN4351	Foreign Business Language-III	2	-	-	2
LAN4352	French-III				
LAN4353	German-III				
LAN4354	Spanish-III				
LAN4355	Russian-III				
LAN4356	Chinese-III				
LAN4357	Portuguese-III				
LAN4358	Korean-III				
LAN4359	Japanese-III				
	Hindi-III				
<b>TOTAL</b>					<b>33</b>

## **FOURTH SEMESTER**

<b>Course Code</b>	<b>Course Title</b>	<b>Lectures (L) Hours per week</b>	<b>Tutorial (T) Hours per week</b>	<b>Practical (P) Hours per week</b>	<b>Total Credits</b>
FCH4405	Quality Management & Accreditation in Forensic Science Laboratories	2	-	-	2
FCH4408	Forensic Psychology	2	1	-	3
FCH4409	Good Laboratory Practices Seminar	-	-	-	1
FCH4437	Major Project*	-	-	-	10
<b>TOTAL</b>					<b>16</b>

\*Students are expected to carry out their project work in laboratories at universities, national institute and industry during 4<sup>th</sup> semester. At the end of 4<sup>th</sup> semester, every student will be evaluated on the basis of project work documented in the project report followed by presentation of their work.

# 13690 Master of Science (Biochemistry) (Total Credits-100)

## Programme Structure-2020

### FIRST SEMESTER

Course Code	Course Title	Lectures (L) Hours per week	Tutorial (T) Hours per week	Practical (P) Hours per week	Total Credits
BCH4101	Basic Biochemistry	2	1	-	3
BCH4102	Biostatistics	1	1	-	2
BCH4104	Biochemical Engineering	1	1	-	2
BCH4106	Instrumentation Techniques	2	1	-	3
BCH4108	Research Seminar	-	-	-	1
BCH4109	Biochemistry of Proteins and Enzymes	2	1	-	3
BCH4110	Cell Biology and Signaling	3	1	-	4
BCH4111	Bioinformatics Lab	-	-	2	1
<b>Open Electives</b>					<b>5</b>
CSS4151	Basics of Communication	1	-	-	1
BEH4151	Self Development and Interpersonal skills	1	-	-	1
LAN4151	Foreign Business Language-I	3	-	-	3
LAN4152	French-I				
LAN4153	German-I				
LAN4154	Spanish-I				
LAN4155	Russian-I				
LAN4156	Chinese-I				
LAN4157	Portuguese-I				
LAN4158	Korean-I				
LAN4159	Japanese-I				
LAN4159	Hindi-I **				
<b>TOTAL</b>					<b>24</b>

\*\* Hindi as Foreign Language for Foreign National Students

### SECOND SEMESTER

Course Code	Course Title	Lectures (L) Hours per week	Tutorial (T) Hours per week	Practical (P) Hours per week	Total Credits
BCH4201	Advanced Biochemistry	3	1	-	4
BCH4202	Structural Biology	2	1	-	3
BCH4203	Genetics	3	1	-	4
BCH4204	Clinical Biochemistry	2	1	-	3
BCH4206	Advanced Biochemistry Lab	-	-	4	2
BCH4207	Cell Biology and Genetics Lab	-	-	4	2

BCH4208	Clinical and Protein Biochemistry Lab	-	-	4	2
BCH4209	Immunology	2	1	-	3
BCH4231	Term Paper	-	-	-	1
	<b>Open Electives</b>				<b>5</b>
CSS4251	Corporate Communication	1	-	-	1
BEH4251	Behavioral Communication and Relationship Management	1	-	-	1
LAN4251	Foreign Business Language-II French-II	3	-	-	3
LAN4252	German-II				
LAN4253	Spanish-II				
LAN4254	Russian-II				
LAN4255	Chinese-II				
LAN4256	Portuguese-II				
LAN4257	Korean-II				
LAN4258	Japanese-II				
LAN4259	Hindi-II				
	<b>TOTAL</b>				<b>29</b>

### SUMMER INTERNSHIP

**Note:** Students must submit their summer internship report immediately on return from summer vacation in June/ July and the same would be evaluated for 6 credit units, which would be included in the Third Semester marks.

### THIRD SEMESTER

Course Code	Course Title	Lectures (L) Hours per week	Tutorial (T) Hours per week	Practical (P) Hours per week	Total Credits
BCH4301	Recombinant DNA Technology	2	1	-	3
BCH4302	Advanced Genetics	2	1	-	3
BCH4303	Molecular Biology	2	1	-	3
BCH4306	Molecular Biology & Microbiology Lab	-	-	4	2
BCH4307	Instrumentation and Genetic Engineering Lab	-	-	4	2
BCH4335	Summer Internship Evaluation/ Study Abroad Programme	-	-	-	6
	<b>Electives (Any One)</b>				<b>3</b>
BCH4308	Microbiology	2	1	-	3
BCH4310	Ecology and Evolution	2	1	-	3
	<b>Electives Lab (Any One)</b>				<b>2</b>
BCH4311	Microbiology Lab	-	-	4	2
BCH4313	Ecology and Evolution Lab	-	-	4	2

<b>Open Electives</b>					<b>4</b>
CSS4351	Interpersonal Communication	1	-	-	1
BEH4351	Leading Through Teams	1	-	-	1
LAN4351	Foreign Business Language-III	2	-	-	2
LAN4351	French-III				
LAN4352	German-III				
LAN4353	Spanish-III				
LAN4354	Russian-III				
LAN4355	Chinese-III				
LAN4356	Portuguese-III				
LAN4357	Korean-III				
LAN4358	Japanese-III				
LAN4359	Hindi-III				
<b>TOTAL</b>					<b>28</b>

## **FOURTH SEMESTER**

<b>Course Code</b>	<b>Course Title</b>	<b>Lectures (L) Hours per week</b>	<b>Tutorial (T) Hours per week</b>	<b>Practical (P) Hours per week</b>	<b>Total Credits</b>
BCH4408	Developmental Biology and Neurological disorders	2	1	-	3
BCH4409	Methodologies of Biochemistry	2	1	-	3
BCH4407	Good Laboratory Practices Seminar	-	-	-	1
BCH4105	Biochemistry Lab	-	-	4	2
BCH4107	Biochemical Engineering Lab	-	-	4	2
BCH4437	Major Project	-	-	-	8
<b>TOTAL</b>					<b>19</b>

\*Student will be sent to laboratories at universities, national institute and industries for their project based research work during 4th semester. At the end of 4th semester student will be evaluated on the basis of dissertation followed by presentation of their research work.