

FACULTY OF SCIENCES
SYLLABUS
Master of Science (Mathematics)
(FYIP)
(Semester: I -II)
(Under Credit Based Continuous
Evaluation Grading System) (CBCEGS)

Session: 2023-24



The Heritage Institution

KANYA MAHA VIDYALAYA
JALANDHAR
(Autonomous)

Master of Science (Mathematics)

Session: 2023-24

Programme Specific Outcomes

Upon successful completion of this course, students will be able to:

PSO1: Solve complex Mathematical problems by critical understanding, analysis and synthesis. Students will also be able to provide a systematic understanding of the concepts and theorem of Mathematics and their applications in the real world to an advanced level, enhance career prospects in a huge array of field suitable to succeed at an entry level position in Mathematics post graduate program.

PSO2: Demonstrate proficiency in Mathematics and the Mathematical concepts needed for a proper understanding of Physics, Chemistry, Electronics, Computer Science and Economics.

PSO3: Create and develop Mathematical software application using a systematic approach & apply discrete Mathematical concept to practical application.

PSO4: Demonstrate knowledge of Calculus I & II, Matrices and Theory of Equations, Analytical and Solid Geometry, Statics & Tensor Calculus and able to apply this knowledge to analyze a variety of Mathematical Phenomena.

PSO5: Demonstrate knowledge of physical chemistry & apply this knowledge to analyze a variety of chemical phenomena & will be able to interpret and analyze quantitative data.

PSO6: Understand and demonstrate the knowledge of Mechanics, area, volume and displacement with differential equation of the orbit.

PSO7: Understand the basic concepts and basic principles of Demand and Supply, Measurement of Price Elasticity of Demand and apply Economic theories to derive cost function from Production Function.

PSO8: Learn implications of Revenue curves and their mutual relationships.

PSO9: Develop statistical approach and mathematical thinking among students to problem solving on a diverse variety of disciplines.

PSO10: Have knowledge of computer fundamentals, able to handle practical programming problems using C and analyze large volume of data using various statistical techniques

Kanya Maha Vidyalaya, Jalandhar (Autonomous)

Scheme and Curriculum of Examinations of Five Years Integrated Programme

(Under Credit Based Continuous Evaluation Grading System) (CBCEGS)

Master of Science (Mathematics) (FYIP)

Semester-I

Session- 2023-24

Master of Science (Mathematics) (FYIP) Semester-I										
Course Code	Course type	Course Title	Hours Per Week L-T-P	Credits L-T-P	Total Credits	Max.Marks				Examination time in hours
						Total	Th	P	CA	
FMAL-1421/ FMAL 1031/ FMAL-1431	C	Punjabi (Compulsory)/ ¹ Basic Punjabi/ ² Punjab History and Culture	2-0-0	2-0-0	2	50	40	-	10	3
FMAL - 1102	C	Communication Skills in English	2-0-0	2-0-0	2	50	40	-	10	3
FMAL - 1333	C	Calculus-I	4-0-0	4-0-0	4	100	80	-	20	3
FMAL - 1334	C	Coordinate Geometry	4-0-0	4-0-0	4	100	80	-	20	3

FMAM-1085	C	⁴ Physical Chemistry	3-0-2	3-0-1	4	100	60	20	20	3+3.5
OR	C	OR	4-0-0	4-0-0	4	100	80	-	20	3
FMAL-1175		³ Microeconomics -I								
FMAL - 1336	C	³ Statics	4-0-0	4-0-0	4	100	80	-	20	3
OR	C	OR	3-0-2	3-0-1	4	100	60	20	20	3+3
FMAM-1396		⁴ Mechanics								
AECD-1161	AC	* Drug Abuse: Problem, Management and Prevention (Compulsory)	2-0-0	2-0-0	2	50	40	-	10	3
SECF-1492	AC	*Foundation Course	2-0-0	2-0-0	2	50	40	-	10	1
Total					24	500				

Note:

¹ Special Course in lieu of Punjabi (Compulsory)

² Special Course in lieu of Punjabi (Compulsory) for those students who are not domicile of Punjab.

³ Only those students can opt these courses who have not studied Chemistry at +2 level.

⁴ Only those students can opt these courses who have studied Chemistry at +2 level.

* Marks of these papers will not be added in total marks. Grades will be provided.

C-Compulsory

AC-Audit Course

Session 2023-24

Punjabi (Compulsory)

Master of Science (Mathematics)

SEMESTER-I

COURSE CODE- FMAL -1421

COURSE OUTCOMES

CO1: 'ਸਾਹਿਤ ਦੇ ਰੰਗ' ਪੁਸਤਕ ਦੇ ਕਵਿਤਾ ਭਾਗ ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਕਵਿਤਾ ਪ੍ਰਤੀ ਦਿਲਚਸਪੀ, ਸੁਝ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਤਾਂ ਕਿ ਉਹ ਆਧੁਨਿਕ ਦੌਰ ਵਿਚ ਚਲ ਰਹੀਆਂ ਕਾਵਿਧਾਰਾਵਾਂ ਅਤੇ ਕਵੀਆਂ ਬਾਰੇ ਗਿਆਨ ਹਾਸਲ ਕਰ ਸਕਣ। ਇਸ ਦਾ ਹੋਰ ਮਨੋਰਥ ਕਵਿਤਾ ਦੀ ਵਿਆਖਿਆ, ਵਿਸ਼ਲੇਸ਼ਣ ਤੇ ਮੁਲੰਕਣ ਦੀ ਪ੍ਰਕਿਰਿਆ ਤੋਂ ਜਾਣੂ ਕਰਾਉਣਾ ਵੀ ਹੈ ਤਾਂ ਕਿ ਉਹ ਸਮਕਾਲੀ ਸਮਾਜ ਦੀਆਂ ਸਮੱਸਿਆਵਾਂ ਨੂੰ ਸਮਝ ਸਕਣ ਅਤੇ ਆਲੋਚਨਾਤਮਕ ਦ੍ਰਿਸ਼ਟੀ ਬਣਾ ਸਕਣ।

CO2: 'ਸਾਹਿਤ ਦੇ ਰੰਗ' ਪੁਸਤਕ ਦੇ ਕਹਾਣੀ ਭਾਗ ਨੂੰ ਸਿਲੇਬਸ ਵਿਚ ਸ਼ਾਮਲ ਕਰ ਕੇ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਕਹਾਣੀ ਪੜ੍ਹਣ ਦੀ ਰੁਚੀ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਅਤੇ ਕਹਾਣੀ ਜਗਤ ਨਾਲ ਜੋੜਣਾ ਹੈ।

CO3: ਪੈਰਾ ਰਚਨਾ ਅਤੇ ਪੈਰਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉਤਰ ਦੇਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਬੁੱਧੀ ਨੂੰ ਤੀਖਣ ਕਰਦਿਆਂ ਉਨਾਂ ਦੀ ਲਿਖਣ ਪ੍ਰਤਿਭਾ ਨੂੰ ਉਜਾਗਰ ਕਰਨਾ ਹੈ।

CO4: ਧੁਨੀ ਵਿਉਂਤ ਪੜ੍ਹਣ ਨਾਲ ਵਿਦਿਆਰਥੀ ਧੁਨੀਆਂ ਦੀ ਉਚਾਰਨ ਪ੍ਰਣਾਲੀ ਤੋਂ ਵਾਕਫ਼ ਹੋਣਗੇ।

Session 2023-24

Punjabi (Compulsory)

Master of Science (Mathematics)

SEMESTER-I

COURSE CODE- FMAL -1421

ਸਮਾਂ : 3 ਘੰਟੇ

Maximum Marks: 50

Theory : 40

CA :10

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪਾਠ ਪੁਸਤਕਾਂ ਯੂਨਿਟ-I

ਸਾਹਿਤ ਦੇ ਰੰਗ (ਸੰਪਾ.ਡਾ ਮਹਿਲ ਸਿੰਘ), ਭਾਗ ਪਹਿਲਾ (ਕਵਿਤਾ),
ਰਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
(ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ, ਸਾਰ)

(ਡਾ. ਹਰਿਭਜਨ ਸਿੰਘ, ਪਾਸ਼, ਸੁਰਜੀਤ ਪਾਤਰ ਕਵੀ ਪਾਠ ਕ੍ਰਮ ਦਾ ਹਿੱਸਾ ਨਹੀਂ ਹਨ)

8 ਅੰਕ

ਯੂਨਿਟ-II

ਸਾਹਿਤ ਦੇ ਰੰਗ (ਸੰਪਾ.ਡਾ ਮਹਿਲ ਸਿੰਘ), ਭਾਗ ਪਹਿਲਾ (ਕਹਾਣੀ),
ਰਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
(ਸਾਰ, ਵਿਸ਼ਾ ਵਸਤੂ)

(ਕੋਈ ਇਕ ਸਵਾਰ, ਘੋਟਣਾ, ਆਪਣਾ ਆਪਣਾ ਹਿੱਸਾ ਕਹਾਣੀਆਂ ਪਾਠ ਕ੍ਰਮ ਦਾ ਹਿੱਸਾ ਨਹੀਂ ਹਨ)

8 ਅੰਕ

ਯੂਨਿਟ-III

ਪੈਰਾ ਰਚਨਾ

ਪੈਰਾ ਪੜ੍ਹ ਕੇ ਪਸ਼ੂਨਾਂ ਦੇ ਉਤਰ।

8 ਅੰਕ

ਯੂਨਿਟ-IV

(ੳ) ਪੰਜਾਬੀ ਧੁਨੀ ਵਿਉਂਤ : ਪਰਿਭਾਸ਼ਾ ਤੇ ਉਚਾਰਨ ਅੰਗ

(ਅ) ਸਵਰ, ਵਿਅੰਜਨ

8 ਅੰਕ

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਸੈਕਸ਼ਨ ਹੋਣਗੇ। ਸੈਕਸ਼ਨ A-D ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ I-IV ਵਿੱਚੋਂ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰ ਸੈਕਸ਼ਨ ਵਿੱਚ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਸੈਕਸ਼ਨ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਸੈਕਸ਼ਨ ਵਿੱਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 8 ਅੰਕ ਹਨ।
4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚ ਕਰ ਸਕਦਾ ਹੈ।

Session 2023-24

Master of Science (Mathematics)

SEMESTER-I

BASIC PUNJABI

In lieu of Punjabi (Compulsory)

COURSE CODE - FMAL-1031

Course outcomes

CO1: ਮੁੱਢਲੀ ਪੰਜਾਬੀ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਨੂੰ ਸਿਖਾਉਣ ਦੀ ਪ੍ਰਕਿਰਿਆ ਵਿਚ ਪਾ ਕੇ ਇਕ ਹੋਰ ਭਾਸ਼ਾ ਸਿੱਖਣ ਦਾ ਮੌਕਾ ਪ੍ਰਦਾਨ ਕਰਨਾ ਹੈ। ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੈਂਤੀ ਅੱਖਰੀ, ਅੱਖਰ ਕ੍ਰਮ, ਪੈਰ ਬਿੰਦੀ ਵਾਲੇ ਵਰਣ ਅਤੇ ਪੈਰ ਵਿਚ ਪੈਣ ਵਾਲੇ ਵਰਣ ਅਤੇ ਮਾਤਰਾਵਾਂ (ਮੁੱਢਲੀ ਜਾਣ ਪਛਾਣ) ਲਗਾਥਰ (ਬਿੰਦੀ, ਟਿੱਪੀ, ਅੱਧਕ) ਦੀ ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ ਤੋਂ ਜਾਣੂ ਕਰਵਾਇਆ ਜਾਵੇਗਾ।

CO2: ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਸ਼ਬਦ ਬਣਤਰ ਦੀ ਮੁੱਢਲੀ ਜਾਣ ਪਛਾਣ (ਸਾਧਾਰਨ ਸ਼ਬਦ, ਸੰਯੁਕਤ ਸ਼ਬਦ, ਮਿਸ਼ਰਤ ਸ਼ਬਦ, ਮੂਲ ਸ਼ਬਦ, ਅਗੇਤਰ ਅਤੇ ਪਿਛੇਤਰ) ਤੋਂ ਜਾਣੂ ਕਰਵਾਇਆ ਜਾਵੇਗਾ।

CO3: ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਨਿੱਤ ਵਰਤੋਂ ਦੀ ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ : ਬਾਜ਼ਾਰ, ਵਪਾਰ, ਰਿਸ਼ਤੇਨਾਤੇ, ਖੇਤੀ ਅਤੇ ਹੋਰ ਧੰਦਿਆਂ ਆਦਿ ਨਾਲ ਸੰਬੰਧਤ ਤੋਂ ਜਾਣੂ ਕਰਵਾਇਆ ਜਾਵੇਗਾ।

CO4: ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਵਿਚ ਹਫ਼ਤੇ ਦੇ ਸੱਤ ਦਿਨਾਂ ਦੇ ਨਾਂ, ਬਾਰਾਂ ਮਹੀਨਿਆਂ ਦੇ ਨਾਂ, ਰੁੱਤਾਂ ਦੇ ਨਾਂ, ਇਕ ਤੋਂ ਸੌ ਤੱਕ ਗਿਣਤੀ ਸ਼ਬਦਾਂ ਵਿਚ ਸਿਖਾਉਣਾ ਹੈ।

Session 2023-24

Master of Science (Mathematics)

SEMESTER-I
BASIC PUNJABI

In lieu of Punjabi (Compulsory)

COURSE CODE - FMAL-1031

ਸਮਾਂ : 3 ਘੰਟੇ

Maximum Marks: 50

Theory : 40

CA : 10

ਪਾਠਕ੍ਰਮ

ਯੂਨਿਟ-I

ਪੈਂਤੀ ਅੱਖਰੀ, ਅੱਖਰ ਕ੍ਰਮ, ਪੈਰ ਬਿੰਦੀ ਵਾਲੇ ਵਰਣ ਅਤੇ ਪੈਰ ਵਿਚ ਪੈਣ ਵਾਲੇ ਵਰਣ ਅਤੇ ਮਾਤ੍ਰਵਾਂ (ਮੁੱਢਲੀ ਜਾਣ ਪਛਾਣ) ਲਗਾਖਰ (ਬਿੰਦੀ, ਟਿੱਪੀ, ਅੱਧਕ) : ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ ।

8 ਅੰਕ

ਯੂਨਿਟ-II

ਪੰਜਾਬੀ ਸ਼ਬਦ ਬਣਤਰ : ਮੁੱਢਲੀ ਜਾਣ ਪਛਾਣ (ਸਾਧਾਰਨ ਸ਼ਬਦ, ਸੰਯੁਕਤ ਸ਼ਬਦ, ਮਿਸ਼ਰਤ ਸ਼ਬਦ, ਮੂਲ ਸ਼ਬਦ, ਅਗੇਤਰ ਅਤੇ ਪਿਛੇਤਰ)

8 ਅੰਕ

ਯੂਨਿਟ-III

ਨਿੱਤ ਵਰਤੋਂ ਦੀ ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ : ਬਾਜ਼ਾਰ, ਵਪਾਰ, ਰਿਸ਼ਤੇ ਨਾਤੇ, ਖੇਤੀ ਅਤੇ ਹੋਰ ਧੰਦਿਆਂ ਆਦਿ ਨਾਲ ਸੰਬੰਧਤ।

8 ਅੰਕ

ਯੂਨਿਟ-IV

ਹਫ਼ਤੇ ਦੇ ਸੱਤ ਦਿਨਾਂ ਦੇ ਨਾਂ, ਬਾਰਾਂ ਮਹੀਨਿਆਂ ਦੇ ਨਾਂ, ਚੁੱਤਾਂ ਦੇ ਨਾਂ, ਇਕ ਤੋਂ ਸੌ ਤਕ ਗਿਣਤੀ ਸ਼ਬਦਾਂਵਿਚ ।

8 ਅੰਕ

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਸੈਕਸ਼ਨ ਹੋਣਗੇ। ਸੈਕਸ਼ਨ A-D ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ I-IV ਵਿੱਚੋਂ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰ ਸੈਕਸ਼ਨ ਵਿੱਚ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁੱਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਸੈਕਸ਼ਨ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਸੈਕਸ਼ਨ ਵਿੱਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 8 ਅੰਕ ਹਨ।
4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚ ਕਰ ਸਕਦਾ ਹੈ।

Master of Science (Mathematics)

(Semester-I)

Session 2023-24

Course Title: Punjab History and Culture (From Earliest Times to C 320)

(Special paper in lieu of Punjabi Compulsory)

(For those students who are not domicile of Punjab)

Course Code: FMAL-1431

COURSE OUTCOMES

After completing Semester I and course on Punjab History and Culture students of History will be able to identify and have a complete grasp on the sources & writings of Ancient Indian History of Punjab.

CO1: Identify and understand the sources and physical features of Punjab

CO 2: To study the earliest civilisation (Indus Valley Civilization) and original home of Aryans

CO 3: To examine the Social, Religious and Economic life during Early and Later Vedic Age

CO 4: To comprehend the Buddhist, Jain and Hindu faith and their relevance in the modern times

Master of Science (Mathematics)

(Semester-I)

Session 2023-24

**Course Title: Punjab History and Culture (From Earliest Times to C 320)
(Special paper in lieu of Punjabi Compulsory)
(For those students who are not domicile of Punjab)**

Course Code: FMAL-1431

Examination Time: 3 Hours

Credits L-T-P: 2-0-0

Contact Hours: 2 Hrs/Week

Max. Marks: 50

Theory: 40

CA: 10

Instructions for the Paper Setter:

1. Question paper shall consist of four Units
2. Examiner shall set 8 questions in all by selecting Two Questions of equal marks from each Unit.
3. Candidates shall attempt 5 questions in 500 words, by at least selecting One Question from each Unit and the 5th question may be attempted from any of the four Units.
4. Each question will carry 16 marks

Unit-I

1. Physical features of the Punjab
2. Sources of the ancient history of Punjab

Unit-II

3. Harappan Civilization: social, economic and religious life of the Indus Valley People.
4. The Indo-Aryans: Original home

Unit-III

5. Social, Religious and Economic life during Early Vedic Age.
6. Social, Religious and Economic life during Later Vedic Age.

UNIT-IV

7. Teachings of Buddhism

8. Teachings of Jainism

Suggested Readings

- B.N. Sharma, Life in Northern India, Delhi. 1966.
- Budha Parkash, Glimpses of Ancient Punjab, Patiala, 1983.
- Chopra, P.N., Puri, B.N., & Das, M.N. (1974). A Social, Cultural & Economic History of India, Vol. I, New Delhi: Macmillan India.
- L. M Joshi (ed.), History and Culture of the Punjab, Art-I, Patiala, 1989 (3rd edition)
- L.M. Joshi and Fauja Singh (ed.), History of Punjab, Vol. I, Patiala 1977.

Master of Science (Mathematics)

(Semester I)

Session 2023-24

COMMUNICATION SKILLS IN ENGLISH

(Theory)

Course Code: FMAL-1102

COURSE OUTCOMES

At the end of this course, the students will develop the following Skills:

CO 1: Reading skills that will facilitate them to become an efficient reader

CO 2: Through reading skills, the students will have an ability to have a comprehensive understanding of the ideas in the text and enhance their critical thinking

CO 3: Writing skills of students which will make them proficient enough to express ideas in clear and grammatically correct English

CO 4: The skill to use an appropriate style and format in writing letters (formal and informal) and resume, memo, notices, agenda, minutes

Master of Science (Mathematics)

(Semester I)

Session 2023-24

COMMUNICATION SKILLS IN ENGLISH (Theory)

Course Code: - FMAL-1102

Examination Time: 3 Hrs

**Total Marks: 50
Theory: 40
CA: 10**

Instructions for the paper setter and distribution of marks:

The question paper will consist of four sections. The candidate will have to attempt five questions in all selecting one from each section and the fifth question from any of the four sections. Each question will carry 08 marks. Each question can be sub divided into two parts.

(08 x 5 = 40)

Section-A: Two questions of theoretical nature will be set from Unit I.

Section-B: Two comprehension passages will be given to the students from Unit II.

Section-C: Two questions will be given from Unit III.

Section-D: Two questions will be set from Unit IV.

Master of Science (Mathematics)

(Semester I)

Session 2023-24

Unit I

Reading Skills: Reading Tactics and strategies; Reading purposes—kinds of purposes and associated comprehension; Reading for direct meanings.

Unit II

Reading for understanding concepts, details, coherence, logical progression and meanings of phrases/ expressions.

Activities:

- Comprehension questions in multiple choice format
- Short comprehension questions based on content and development of ideas

Unit III

Writing Skills: Guidelines for effective writing; writing styles for application, personal letter, official/ business letter.

Activities:

- Formatting personal and business letters.
- Organizing the details in a sequential order

Unit IV

Resume, memo, notices, agenda, minutes, Tips for effective blog writing

Activities:

- Converting a biographical note into a sequenced resume or vice-versa
- Ordering and sub-dividing the contents while making notes.
- Writing notices for circulation/boards
- Writing blogs

Recommended Books:

- 1) *Oxford Guide to Effective Writing and Speaking* by John Seely.
- 2) *Business Communication*, by Sinha, K.K. Galgotia Publishers, 2003.
- 3) *Business Communication* by Sethi, A and Adhikari, B., McGraw Hill Education 2009.
- 4) *Communication Skills* by Raman, M. & S. Sharma, OUP, New Delhi, India (2011).

Master of Science (Mathematics)

Semester-I

Session- 2023-24

Course Title: Calculus-I

Course Code: FMAL-1333

Course Outcomes

After passing this course, the students will be able to:

CO 1: Understand real number system, lub & glb of set of real numbers, limit of a function, basic properties of limit, continuity, and classification of discontinuities & to apply it in real world problem.

CO 2: To Classify the difference between increasing and decreasing functions and understand the concept of Differentiability of functions and maxima & minima.

CO 3: Demonstrate Asymptotes, points of inflexion, multiple points on a curve & also to differentiate between concavity and convexity & hence tracing of curve.

CO 4: To understand the concepts of Riemann sum, definite integrals and their properties, the fundamental theorem of calculus, applications to length of arc and area bounded between curves, Reduction Formulae & to apply in a wide variety of disciplines like Bio, Eco, Physics & Engineering.

Master of Science (Mathematics)

Semester-I

Session-2023-24

Course Title: Calculus-I

Course Code: FMAL-1333

Examination Time: 3 Hours

Max. Marks: 100

Theory: 80

CA:20

L T P

4 0 0

Instructions for Paper Setters:

Eight questions of equal marks (16 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit I

Real line, intervals, l.u.b. and g.l.b., the l.u.b. property of real numbers and order properties of real numbers, Archimedean property, definition of the limit of a function of real variable, algebra of limits, continuity, classification of discontinuities

Unit II

Differentiability of functions of real variable, increasing and decreasing functions, maxima and minima, mean values theorems

Unit III

Intermediate-value theorems, Asymptotes, concavity and convexity, points of inflexion, curve tracing .

Unit IV

Anti derivative of function of real variable, Riemann sums, definite integrals and their properties, the fundamental theorem of calculus, applications to length of arc and area bounded between curves, Reduction Formulae.

Text Book:

George B. Thomas and Ross L. Finney, Calculus and Analytic Geometry, Pearson publication, 9th Edition, 1998.

Reference Books:

1. A.D.R. Choudary and C.P. Niculescu, Real Analysis on Intervals, Springer, 2014.
2. E. Kreyszig, Advanced Engineering Mathematics, Wiley Publication, 10th Edition, 2011.
3. Sudhir R. Ghorpade and B.V. Limaye, A course in calculus and real analysis, Springer, 2006.

Master of Science (Mathematics)

Semester-I

Session- 2023 -24

Course Title: Coordinate Geometry

Course Code: FMAL-1334

Course Outcomes

After passing this course, the students will be able to:

CO 1: Understand the concept of the geometry of lines in the Euclidian plane. Additionally, they will be able to develop geometry with a degree of confidence and will gain fluency in the basics of 2-d geometry.

CO 2: Gain deeper insight in core concepts and geometry related to circles including wider characteristics like tangent, normal, radical axis etc.

CO 3: Demonstrate the concept of parabola, ellipse, hyperbola and the general quadratic equation; and sketch conic sections, identify conic sections, their focal properties and classifications.

CO 4: Understand the concept of coordinate geometry on a wider scale with the help of shifting of origin and rotation of axis.

Master of Science (Mathematics)

Semester-I

Session 2023 -24

Course Title: Coordinate Geometry

Course Code: FMAL-1334

Examination Time: 3 Hours

L T P

4 0 0

Max. Marks: 100

Theory: 80

CA: 20

Instructions for the Paper Setters:

Eight questions of equal marks (16 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section. The question paper must contain 30% of the article/theory from the syllabus.

Unit I

Pair of Straight lines: Joint equation of pair of straight lines and angle between them, condition of parallelism and perpendicularity, joint equation of the angle bisectors, joint equation of lines joining origin to the intersection of a line and a curve.

Unit II

Circle: General equation of circle, circle through intersection of two lines, tangent and normal, Chord of contact, pole and polar, pair of tangents from a point, equation of chord in midpoint form, angle of intersection and orthogonality, power of a point w.r.t circle, radical axis, co-axial family of circles, limiting points.

Unit III

Conic sections: Parabola, ellipse and hyperbola, tangent and normal, chord of contact, pole and polar of tangent from a point, equation of chord in terms of midpoint, diameter, conjugate diameters of ellipse and hyperbola, conjugate hyperbola, asymptotes of hyperbola, rectangular hyperbola.

Unit IV

Transformation of axes in two dimensions: shifting of origin, rotation of axes, the second degree equation $S=ax^2+2hxy+by^2+2gx+2fy+c=0$, its invariants t , Δ , and O . Reduction of the second degree equation into standard form. Identification of curves represented by $S=0$ (including pair of lines). Polar coordinates: Polar equations of straight lines, circles and conics.

Text Book:

S.L. Loney, The elements of Coordinate Geometry, London: Macmillan, 11th edition, 1965.

Reference Book:

P.K Jain and K. Ahmed, Text book of Analytical Geometry, New Age International Publishers, 3rd edition, 2014

Master of Science (Mathematics)

(Semester-I)

Session: 2023-24

Course Title: Physical Chemistry

Course Code: FMAM-1085

Course outcomes

Students will be able to:

CO1: understand the various thermodynamic properties and laws of Thermodynamics, acquire knowledge about the various thermodynamic terms like enthalpy of formation, enthalpy of ionisation, entropy, internal energy

CO2: calculate entropy change for reversible and irreversible processes under isothermal and non-isothermal conditions and also absolute entropies of substances, understand the concept of reaction rates and determine the rate law from initial rate data, determine the order of reaction with respect to each reactant, the overall order of reaction, the rate constant with units

CO3: understand the relation between free energy change and equilibrium constants K_p , K_c and K_f ; describe the Phases and Phase rule and its thermodynamic derivation and determine the transference number of ions using Hittorf and moving boundary methods

CO4: draw and explain the phase diagrams of water system, sulphur system, understand the concept of Electrochemistry and various terms related to it like resistance, conductance, specific resistance, cell constant, EMF, importance of Nernst Equation

Master of Science (Mathematics)

(Semester-I)

Session: 2023-24

Course Title: Physical Chemistry

Course Code: FMAM-1085

Exam Time: 3 Hrs.

Max.Marks:60

Credit(L-T-P): 3-0-0

Instructions for the Paper Setters:

Eight questions of Twelve marks each are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Unit I

Chemical Thermodynamics

Laws of thermodynamics, Enthalpy of a system, heat capacity, Isothermal and adiabatic process in ideal gases, Carnot cycle, thermodynamic efficiency, Thermo-Chemistry : heat of reaction at constant volume and pressure thermo chemical equations, calculations of E from H and vice versa, Hess's law of heat summation, heat of formation, heats of combustion, heat of solution, heat of neutralization of acids and bases, dependence of H and E for a reaction

(Kirchoff's equation). II and III law of thermodynamics: Entropy, dependence of entropy on variables of a system, Entropy change in ideal gases, entropy of mixing for ideal gases, entropy change in physical transformations, entropy change in chemical reactions, absolute Entropies, residual entropy, thermodynamics of III Law.

Unit II

Equilibrium

Equilibrium and Spontaneity under constraints- General conditions. Helmholtz free energy (A) for reactions. Gibbs free energy. Chemical potential, Gibbs free energy and entropy of mixing of ideal gases. The Equilibrium constants K_p and K_c of real gases. Phase Rule, Gibbs Phase rule, derivation of phase rule, one component system, the water system, the sulfur system.

Unit III

Chemical Kinetics

Measurement of reaction rate, order, molecularity of reaction, first order reactions, second order reactions, third order reactions, Methods of determination of order, effect of temperature, activation energy.

Unit IV

Electro-Chemistry

Conductance and Ionic Equilibrium: Faraday's law of electrolysis, Kohlrausch law of independent migration of ions, transference numbers, determination of transference numbers, electrolytic conductance, variation of conductance with concentration, equivalent conductance at infinite dilution, Applications of conductance measurements, Reversible and Irreversible cells, standard cells, cell reaction and EMF. Single electrode potential and its calculation, thermodynamic and EMF, standard potential and equilibrium constants.

Books Recommended:

1. Physical Chemistry by Samuel H, Carl P. Putton; 4th Edition, Americ Inc. Co.
2. Physical Chemistry by Glasstone, 2nd Edition, The Macmillian Press Ltd.
3. Kinetic and Mechanism by Frost A and Pearson R.G, 3rd Edition, Wiley Eastern Pvt. Ltd.
4. Chemical Kinetic by K.J. Laidler, Harper and Row.
5. Physical Chemistry by Glberg W. Castellian Addison: 3rd Revised Edition Wesley publishing Comp

Master of Science (Mathematics)

(Semester-I)

Session: 2023-24

Course Title: Physical Chemistry Practical

Course Code: FMAM-1085 (P)

Course outcomes:

Students will be able to:

CO1: determine the surface tension of different liquids and solutions

CO2: determine the viscosity of different liquids and solutions

CO3: efficiently use of calorimeter in various experiments

CO4: determine heat of neutralization and heat of solution

Master of Science (Mathematics)

(Semester-I)

Session: 2023-24

Course Title: Physical Chemistry Practical

Course Code:FMAM-1085(P)

Exam Time: 3.5 Hrs

Max. Marks: 20

Credit (L-T-P): 0-0-1

Instruction for practical examiner: Question paper is to be set on the spot jointly by the Internal and External Examiners. Two copies of the same should be submitted for the record to COE Office, KanyaMahaVidyalaya, Jalandhar.

1. Determine the coefficient of viscosity of the given liquid (CCl_4 , glycerine solution in water).
2. Determine the surface tension of given liquid (CCl_4 , glycerine solution in water) by drop number method.
3. Determine the surface tension of given liquid (CCl_4 , glycerine solution in water) by drop weight method.
4. Determine the water equivalent of given calorimeter.
5. Determine the enthalpy of neutralisation of a strong acid versus strong base.
6. Determine the enthalpy of neutralisation of a weak acid/weak base versus strong base/strong acid and determine the enthalpy of ionisation of the weak acid/weak base.
7. Determine the enthalpy of dissolution of solid calcium chloride in water at room temperature.

Books Recommended:

1. Experiments in General Chemistry, C.N.R. Rao and U.C. Aggarwal, East-West Press.
2. Experiments in Physical Chemistry, R.C. Das and B. Behra, Tata McGraw Hill.
3. Advanced Practical Physical Chemistry, J.B. Yadav, Goel Publishing House.
4. Advanced Experimental Chemistry, Vol. I, Physical, J.N. Guru and R. Kapoor, S. Chand and Co.
5. Selected Experiments in Physical Chemistry, N.G. Mukherjee, J.N. Ghosh and Sons.
6. Experiments Physical Chemistry, J.C. Ghosh, BharatiBhavan.

Master of Science (Mathematics)

Semester-I

Session 2023-2024

Course Code: FMAL-1175

Microeconomics-I

Course outcomes:

After passing this course students will be able to:

CO1: describe and apply the methods of analyzing consumer behavior through demand, supply and elasticity.

CO2: have an in-depth understanding of consumer behavior.

CO3: analyze and demonstrate knowledge of the basic theories and laws in economics such as laws of production.

CO4: learn about the various cost and revenue curves, and production function.

Master of Science (Mathematics)

Semester-I

Session 2023-2024

Course Code: FMAL-1175

Course Title: Microeconomics-I

Time: 3 Hours

L-T-P (Credits):

4-0-0

Max. Marks: 100

Theory : 80

CA:20

Note: Instructions for the Paper-Setter:

Two questions, each carrying 16 marks, from each of the Units I-IV (i.e. a total of eight questions) are to be set. Candidates are required to attempt five questions, selecting at least one from each unit. The fifth question may be attempted from any unit.

Unit I

Basic problems of an economy. Demand and Supply functions – an introductory view of price formation, Role of time element in price formation.

Price, income and cross elasticities of demand, Measurement of price elasticity of demand, Elasticity of substitution and the relationship between price elasticity, income elasticity and elasticity of substitution; Elasticity of supply.

Unit II

Theories of demand: The classical utility approach, Indifference curves approach, Revealed Preference approach, consumer's surplus.

Unit III

Theory of production: Production function, isoquants, returns to a factor and returns to scale and their compatibility, Elasticity of substitution, Economies of scale.

Unit IV

Cobb-Douglas production function, Production function of a multi-product firm.

Theories of Costs: Short and long period costs, Traditional and Modern theories of costs, Derivation of cost function from production function.

Revenue analysis: Revenue curves and their mutual relationship.

Suggested Readings:

1. Ahuja, H. L. (2009), Modern Micro Economics, Sultan Chand and Co.

2. Koutsyannis, A. (1977), *Modern Microeconomics*, 2nd Edition, Macmillan Press, London.

Note: The latest edition of the books is recommended.

Master of Science (Mathematics)

Semester-I

Session-2023 -24

Course Title: Statics

Course Code: FMAL-1336

Course Outcomes

After passing this course, the students will be able to:

CO 1: Apply parallelogram law of forces, triangle law of forces, Lami's theorem to real life problems.

CO 2: Understand that how one can resolve number of coplanar forces, parallel forces and concurrent forces acting at a body.

CO 3: Understand the concept of equilibrium and its related properties.

CO 4: Find the applications of CG of a rod, triangular lamina, solid hemisphere, hollow hemisphere, solid cone and hollow cone.

Master of Science (Mathematics)

Semester-I

Session 2023 -24

Course Title: Statics

Course Code: FMAL-1336

Examination Time: 3 Hours

L T P

4 0 0

Max. Marks: 100

Theory: 80

CA: 20

Instructions for the Paper Setters:

Eight questions of equal marks (16 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section. The question paper must contain 30% of the article/theory from the syllabus.

Unit- I

Composition and resolution of forces (parallelogram law, triangle law, polygon law, Lami's Theorem, $(\lambda-\mu)$ theorem). Resultant of a number of coplanar forces.

Unit- II

Parallel forces, Moments, Varignon's theorem of moments, Couples, Resultant of two Coplanar Couples, Equilibrium of two coplanar couples, Resultant of a force and a couple.

Unit -III

Equilibrium of a rigid body acted on by three forces in a plane, General Conditions of equilibrium of a rigid body acted on by forces in one plane.

Unit -IV

Friction, Laws of friction, Equilibrium of a particle on a rough plane. Centre of Gravity: Centre of gravity of a rod, triangular lamina, solid hemisphere, hollow hemisphere, solid cone and hollow cone.

Text Book:

S.L. Loney, The Elements of Statics and Dynamics, Arihant Publications, Sixth edition, 2016

Master of Science (Mathematics)

**Semester-I
(Session 2023-24)**

Course Title: Mechanics

Course Code: FMAM-1396

Course Outcomes: Mechanics -Paper (A)

After passing this course, students will be able to:

CO1: Understand the various coordinate systems and its applications. Students will be able to know the conservations laws and the symmetries of space & time.

CO2: Know the fundamental forces of nature, concept of centre of mass, central forces and the motion of particle under central force and to determine the turning points of orbit.

CO3: Understand the frames of reference, coriolis forces and its applications and effect of rotation of earth on g.

CO4: understand the elastic collision in different systems, cross section of elastic scattering as well as Rutherford scattering and know the motion of rigid body.

Master of Science (Mathematics)

Semester-I

(Session 2023-24)

Course Title: Mechanics

Course Code: FMAM-1396

Examination Time: 3 Hours

Total Teaching hours: 60

Passing marks: 35%

Max. Marks: 100

Theory: 60 (External)

CA:20

Credits: 3-0-1

Instructions for Paper setter:

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries 12 marks.

Section-A

Inertial Cartesian and spherical polar co-ordinate systems: area, volume, displacement, velocity and acceleration in these systems, solid angles and frames of reference, Galilean transformation, Galilean Invariance of space & time intervals; fictitious forces. Effect of rotation of earth on 'g'. Effects of centrifugal and Coriolis forces produced as a result of earth's rotation.

Section-B

Internal forces and momentum conservation. Centre of mass. Elastic collisions in laboratory and center of mass systems; velocities, angles, energies in these systems and their relationships. Conservation of angular momentum and examples -shape of the galaxy, angular momentum of

solar system. Torques due to internal forces, angular momentum about centre of mass. Cross-section of elastic scattering and impact parameter, Rutherford scattering.

Section-C

Forces in nature (qualitative). Central forces, Potential energy and force between a point mass and spherical shell, a point mass and solid sphere, gravitational and electrostatic self energy. Two body problem and concept of reduced mass. Motion of a body under central force; differential equation of the orbit, equation of orbit in inverse-square force field. Kepler's laws and their derivation.

Section-D

Equation of motion of a rigid body, Rotational motion of a rigid body in general and that of plane lamina. Rotation of angular momentum vector about a fixed axis. Angular momentum and kinetic energy of a rigid body about principal axis, Euler's equations.

Suggested Readings:

1. Mechanics-Berkeley Physics Course, Vol-I (second edition): C. Kittel, W. D. Knight, M. A. Ruderman, C. A. Helmholtz and R. J. Moyer-Tata Mc Graw Hill Publishing Company Ltd., New Delhi.
2. Fundamentals of Physics: D. Halliday, R. Resnick and J. Walker (sixth edition)-Wiley India Pvt. Ltd., New Delhi, 2004.
3. Analytical Mechanics: S. K. Gupta, Modern Publishers.
4. An Introduction to Mechanics. Daniel Kleppner & Robert Kolenkow Tata Mc Graw Hill Publishing Company Ltd., New Delhi

Master of Science (Mathematics)

Semester-I

(Session 2023-24)

PHYSICS PRACTICAL
Course Code: FMAM-1396 (P)
Credits : 0-0-1

Instructions to Practical Examiner

Question paper is to be set on the spot jointly by the external and internal examiners. Two copies of the same to be submitted for the record to COE office, Kanya Maha Vidyalaya, Jalandhar

General Guidelines for Practical Examination

I. The distribution of marks is as follows: **Marks: 20**

i) One experiment **7 Marks**

ii) Brief Theory **3 Marks**

iii) Viva-Voce **5 Marks**

iv) Record (Practical file) **5 Marks**

II. There will be one sessions of 3 hours duration. The paper will have one session.

Paper will consist of 8 experiments out of which an examinee will mark 6 experiments and one of these is to be allotted by the external examiner.

III. Number of candidates in a group for practical examination should not exceed 12.

IV. In a single group no experiment is to be allotted to more than three examinees in any group.

LIST OF EXPERIMENTS

1. To study the dependence of moment of inertia on distribution of mass (by noting time periods of oscillations using objects of various geometrical shapes but of same mass).
2. To establish relationship between torque and angular acceleration using fly wheel.
3. To find the moment of inertia of a flywheel.
4. Study of bending of beams and determination of Young's modulus.
5. Determination of Poisson's ratio for rubber.
6. To determine energy transfer, coefficient of restitution and verify laws of conservation of linear momentum and kinetic energy in elastic collisions using one dimensional collisions of hanging spheres.
7. Measure time period as a function of distance of centre of suspension (oscillation) from centre of mass, plot relevant graphs, determine radius of gyration and acceleration due to gravity.
8. Find the value of 'g' by Kater's pendulum.
9. Measure time period of oscillation of a Maxwell needle and determine modulus of rigidity of the material of a given wire.
10. To measure logarithmic decrement, coefficient of damping, relaxation time, and quality factor of a damped simple pendulum.

Master of Science (Mathematics)

Session (2023-24)

SEMESTER –I

AECD-1161 Drug Abuse: Problem, Management and Prevention

Course Outcomes

After completing the course the students will be able to:

CO1. Learn how to include factual data about what substance abuse is; warning signs of addiction; information about how alcohol and specific drugs affect the mind and body;

CO 2. Learn how to be supportive during the detoxification and rehabilitation process.

CO3. Focus on substance abuse education- is teaching individuals about drug and alcohol abuse and how to avoid, stop, or get help for substance use disorders.

CO 4. Understand that substance abuse education is important for students alike; there are many misconceptions about commonly used legal and illegal substances, such as alcohol and marijuana

Master of Science (Mathematics)

Session 2023-24

**Drug Abuse: Problem, Management and Prevention
(COMPULSORY)**

Course Code:

AECD-1161

Time: 3 Hrs

Max. Marks: 50

Theory: 40

CA: 10

Instructions for the Paper Setter:

Eight questions of equal marks (8 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT-I

Meaning of Drug Abuse: Meaning, Nature , Types and Extent of Drug Abuse in India and Punjab.

Consequences of Drug Abuse for:

Individual : Education, Employment, Income.

Family : Violence.

Society : Crime , Social Disorganization

UNIT-II

Prevention of Drug abuse: Role of family: Parent child relationship, Family support, Supervision, Shaping values, Active Scrutiny.

School: Counselling, Teacher as role-model. Parent-teacher-Health Professional Coordination, Random testing on students

Media: Restraint on advertisements of drugs, advertisements on bad effects of drugs, Publicity and media, Campaigns against drug abuse, Educational and awareness program

UNIT-III

Management of Drug Abuse**Medical management :** medication for treatment and to withdrawal effects.

UNIT-IV

Psychiatric Management: Counselling, Behavioural and Cognitive therapy.

Social Management: Family, Group therapy and Environmental Intervention.

Legislation: NDPs act, Statutory warnings, Policing of Borders, Checking Supply/Smuggling of Drugs, Strict enforcement of laws, Time bound trials

Suggested Readings:

1. Ahuja, Ram (2003), *Social Problems in India*, Rawat Publication, Jaipur.
- 2 Extent, Pattern and Trend of Drug Use in India, Ministry of Social Justice and Empowerment, Government of India, 2004.
3. Inciardi, J.A. 1981. *The Drug Crime Connection*. Beverly Hills: Sage Publications.
4. Kapoor. T. (1985) *Drug epidemic among Indian Youth*, New Delhi: Mittal

Pub.

5.Modi, Ishwar and Modi, Shalini (1997) *Drugs: Addiction and Prevention*, Jaipur: Rawat Publication.

6.National Household Survey of Alcohol and Drug abuse. (2003) New Delhi, Clinical Epidemiological Unit, All India Institute of Medical Sciences, 2004.

7.Sain, Bhim 1991, *Drug Addiction Alcoholism, Smoking obscenity* New

Delhi: Mittal Publications.

8.Sandhu, Ranvinder Singh, 2009, *Drug Addiction in Punjab: A Sociological Study*. Amritsar: Guru Nanak Dev University.

9.Singh, Chandra Paul 2000. *Alcohol and Dependence among Industrial Workers*: Delhi: Shipra.

10.Sussman, S and Ames, S.L. (2008). *Drug Abuse: Concepts, Prevention and Cessation*, Cambridge University Press.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)

Scheme and Curriculum of Examinations of Five Years Integrated Programme

(Under Credit Based Continuous Evaluation Grading System) (CBCEGS)

Master of Science (Mathematics) (FYIP)

Semester-II

Session- 2023-24

Master of Science (Mathematics) (FYIP) Semester-II										
Course Code	Course Type	Course Title	Hours Per Week L-T-P	Credits L-T-P	Total Credits	Marks				Examination time in hours
						Total	Th	P	CA	
FMAL-2421/ FMAL -2031/ FMAL -2431	C	Punjabi (Compulsory)/ ¹ Basic Punjabi/ ² Punjab History and Culture	2-0-0	2-0-0	2	50	40	-	10	3
FMAM-2102	C	Communication skills in English	1-0-2	1-0-1	2	50	25	15	10	3+3
FMAL -2333	C	Calculus-II	4-0-0	4-0-0	4	100	80	-	20	3
FMAL -2334	C	Matrices and Theory of Equations	4-0-0	4-0-0	4	100	80	-	20	3
FMAL -2335	C	Solid Geometry	4-0-0	4-0-0	4	100	80	-	20	3

FMAL -2336	C		4-0-0	4-0-0	4	100	80	-	20	3
OR		³ Dynamics								
		OR								
FMAM-2396	C	⁴ Modern Physics	3-0-2	3-0-1	4	100	60	20	20	3+3
FMAM-2137	C	Computer Fundamentals and Introduction to C Programming Language	3-0-2	3-0-1	4	100	50	30	20	3+3
SECM-2502	AC	*Moral Education	2-0-0	2-0-0	2	50	40	-	10	1
		Total			26	600				

Note:

¹ Special Course in lieu of Punjabi (Compulsory)

² Special Course in lieu of Punjabi (Compulsory) for those students who are not domicile of Punjab.

³ Only those students can opt these courses who have not studied Chemistry at +2 level.

⁴ Only those students can opt these courses who have studied Chemistry at +2 level.

* Marks of these papers will not be added in total marks. Grades will be provided.

C-Compulsory

AC-Audit Course

Punjabi (Compulsory)
Master of Science (Mathematics)

SEMESTER-II

COURSE CODE- FMAL -2421

COURSE OUTCOMES

CO1: 'ਸਾਹਿਤ ਦੇ ਰੰਗ' ਪੁਸਤਕ ਦੇ ਵਾਰਤਕ ਭਾਗ ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਵਾਰਤਕ ਪ੍ਰਤੀ ਦਿਲਚਸਪੀ, ਸੁਝ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ।

CO2: 'ਸਾਹਿਤ ਦੇ ਰੰਗ' ਪੁਸਤਕ ਦੇ ਰੇਖਾ ਚਿੱਤਰ ਭਾਗ ਨੂੰ ਸਿਲੇਬਸ ਵਿਚ ਸ਼ਾਮਲ ਕਰ ਕੇ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਰੇਖਾ ਚਿੱਤਰ ਨੂੰ ਪੜ੍ਹਣ ਦੀ ਰੁਚੀ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਤੇ ਇਹਨਾਂ ਮਹਾਨ ਸ਼ਖ਼ਸੀਅਤਾਂ ਦੀ ਸਫਲਤਾ ਪਿੱਛੇ ਘਾਲੀਆਂ ਘਾਲਣਾਵਾਂ ਤੇ ਵਾਕਫ਼ ਕਰਵਾਉਂਦਿਆਂ ਜੀਵਨ ਸੇਧ ਪ੍ਰਦਾਨ ਕਰਨਾ ਹੈ।

CO3: ਮੁਹਾਵਰੇ / ਅਖਾਣ ਦੀ ਵਰਤੋਂ ਨਾਲ ਗੱਲਬਾਤ ਵਿਚ ਪਰਪੱਕਤਾ ਆਉਂਦੀ ਹੈ। ਇਹ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਗੱਲਬਾਤ ਵਿਚ ਨਿਖਾਰ ਲਿਆਉਣ ਦਾ ਕੰਮ ਕਰਨਗੇ। ਪੈਰਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ ਦੇਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਬੁੱਧੀ ਨੂੰ ਤੀਖਣ ਕਰਦਿਆਂ ਉਨਾਂ ਦੀ ਲਿਖਣ ਪ੍ਰਤਿਭਾ ਨੂੰ ਉਜਾਗਰ ਕਰਨਾ ਹੈ।

CO4: ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਅਮੀਰੀ ਦਾ ਅਤੇ ਬਾਰੀਕੀਆਂ ਨੂੰ ਸਮਝਣ ਲਈ ਵੱਖਰੇ-ਵੱਖਰੇ ਸਿਧਾਂਤਾਂ ਦਾ ਵਿਕਾਸ ਕਰਨਾ ਹੈ।

Session 2023-24

Punjabi (Compulsory)

Master of Science (Mathematics)

SEMESTER-II

COURSE CODE- FMAL -2421

ਸਮਾਂ : 3 ਘੰਟੇ

Maximum Marks: 50
Theory : 40
CA :10

ਪਾਠਕ੍ਰਮ ਅਤੇ ਪਾਠ ਪੁਸਤਕਾਂ

ਯੂਨਿਟ-I

ਸਾਹਿਤ ਦੇ ਰੰਗ (ਸੰਪਾ.ਡਾ ਮਹਿਲ ਸਿੰਘ), ਭਾਗ ਦੂਜਾ(ਵਾਰਤਕ), ਰਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
(ਲਾਲ ਬਾਦਸ਼ਾਹ, ਹਾਰ ਸ਼ਿੰਗਾਰ, ਡੂੰਘੀਆਂ ਸਿਖਰਾਂ ਲੇਖ ਪਾਠ ਕ੍ਰਮ ਦਾ ਹਿੱਸਾ ਨਹੀਂ ਹਨ)
(ਸਾਰ, ਵਿਸ਼ਾ ਵਸਤੂ)

8 ਅੰਕ

ਯੂਨਿਟ-II

ਸਾਹਿਤ ਦੇ ਰੰਗ (ਸੰਪਾ.ਡਾ ਮਹਿਲ ਸਿੰਘ), ਭਾਗ ਦੂਜਾ(ਰੇਖਾ ਚਿੱਤਰ), ਰਵੀ ਸਾਹਿਤ ਪ੍ਰਕਾਸ਼ਨ, ਅੰਮ੍ਰਿਤਸਰ।
(ਬਾਤਾਂ ਮੋਹਨ ਸਿੰਘ ਕੀਆਂ, ਗੁਲਾਬੀ ਕਾਗਜ਼ ਉੱਤੇ ਲਿਖੀ ਕਵਿਤਾ: ਸੰਤੋਖ ਸਿੰਘ ਧੀਰ, ਸਤਿੰਦਰ ਸਿੰਘ ਨੂਰ : ਸਾਹਿਤ ਦਾ
ਜਥੇਦਾਰ ਰੇਖਾ ਚਿੱਤਰ ਪਾਠ ਕ੍ਰਮ ਦਾ ਹਿੱਸਾ ਨਹੀਂ ਹਨ)
(ਸਾਰ, ਨਾਇਕ ਬਿੰਬ)

8 ਅੰਕ

ਯੂਨਿਟ-III

(ੳ) ਮੁਹਾਵਰੇ / ਅਖਾਣ
(ਅ) ਪੈਰਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ।

8 ਅੰਕ

ਯੂਨਿਟ-IV

(ੳ) ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ : ਨਾਂਵ, ਪੜਨਾਂਵ, ਕਿਰਿਆ, ਵਿਸ਼ੇਸ਼ਣ
(ਅ) ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ: ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ, ਸੰਬੰਧਕ, ਯੋਜਕ, ਵਿਸਮਿਕ

8 ਅੰਕ

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਸੈਕਸ਼ਨ ਹੋਣਗੇ। ਸੈਕਸ਼ਨ A-D ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ I-IV ਵਿੱਚੋਂ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰ ਸੈਕਸ਼ਨ ਵਿੱਚ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਸੈਕਸ਼ਨ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਸੈਕਸ਼ਨ ਵਿੱਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 8 ਅੰਕ ਹਨ।
4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚ ਕਰ ਸਕਦਾ ਹੈ।

Master of Science (Mathematics)

SEMESTER-II

BASIC PUNJABI

In lieu of Punjabi (Compulsory)
COURSE CODE - FMAL -2031

Course outcomes

CO1: ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ : ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ (ਨਾਂਵ, ਪੜਨਾਂਵ, ਕਿਰਿਆ, ਵਿਸ਼ੇਸ਼ਣ, ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ, ਸਬੰਧਕ, ਯੋਜਕ ਅਤੇ ਵਿਸਮਿਕ) ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਅਮੀਰੀ ਦਾ ਅਤੇ ਬਾਰੀਕੀਆਂ ਨੂੰ ਸਮਝਣ ਲਈ ਵੱਖਰੇ-ਵੱਖਰੇ ਸਿਧਾਂਤਾਂ ਦਾ ਵਿਕਾਸ ਕਰਨਾ ਹੈ।

CO2: ਵਿਦਿਆਰਥੀ ਪੰਜਾਬੀ ਵਾਕ ਬਣਤਰ (ਸਾਧਾਰਨ ਵਾਕ, ਸੰਯੁਕਤ ਵਾਕ, ਮਿਸ਼ਰਤ ਵਾਕ, ਬਿਆਨੀਆ ਵਾਕ, ਪ੍ਰਸ਼ਨ ਵਾਚਕ ਵਾਕ ਅਤੇ ਹੁਕਮੀ ਵਾਕ) ਦੀ ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਇਸ ਦੀ ਬਣਤਰ ਤੋਂ ਜਾਣੂ ਹੋਣਗੇ ਅਤੇ ਉਨ੍ਹਾਂ ਦੀ ਭਾਸ਼ਾ ਤੇ ਪਕੜ ਮਜ਼ਬੂਤ ਹੋਵੇਗੀ।

CO3: ਪੈਰਾ ਰਚਨਾ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਬੁੱਧੀ ਨੂੰ ਤੀਖਣ ਕਰਦਿਆਂ ਉਨ੍ਹਾਂ ਦੀ ਲਿਖਣ ਪ੍ਰਤਿਭਾ ਨੂੰ ਉਜਾਗਰ ਕਰਨਾ ਹੈ। ਅਖਾਣ ਦੀ ਵਰਤੋਂ ਨਾਲ ਗੱਲਬਾਤ ਵਿਚ ਪਰਪੱਕਤਾ ਆਉਂਦੀ ਹੈ। ਇਹ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਗੱਲਬਾਤ ਵਿਚ ਨਿਖਾਰ ਲਿਆਉਣ ਦਾ ਕੰਮ ਕਰਨਗੇ।

CO4: ਘਰੇਲੂ ਅਤੇ ਦਫ਼ਤਰੀ ਚਿੱਠੀ ਪੱਤਰ ਲਿਖਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਇਸ ਕਲਾ ਵਿਚ ਨਿਪੁੰਨ ਕਰਨਾ ਹੈ। ਮੁਹਾਵਰਿਆਂ ਦੀ ਵਰਤੋਂ ਨਾਲ ਗੱਲਬਾਤ ਵਿਚ ਪਰਪੱਕਤਾ ਆਉਂਦੀ ਹੈ। ਇਹ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਗੱਲਬਾਤ ਵਿਚ ਨਿਖਾਰ ਲਿਆਉਣ ਦਾ ਕੰਮ ਕਰਨਗੇ।

SESSION 2023-24
Master of Science (Mathematics)

SEMESTER-II

BASIC PUNJABI

In lieu of Punjabi(Compulsory)

COURSE CODE - FMAL -2031

ਸਮਾਂ: 3 ਘੰਟੇ

Maximum Marks: 50

Theory : 40

CA : 10

ਪਾਠਕ੍ਰਮ

ਯੂਨਿਟ-I

ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ : ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ (ਨਾਂਵ, ਪੜਨਾਂਵ, ਕਿਰਿਆ, ਵਿਸ਼ੇਸ਼ਣ, ਕਿਰਿਆ ਵਿਸ਼ੇਸ਼ਣ, ਸਬੰਧਕ, ਯੋਜਕ ਅਤੇ ਵਿਸਮਿਕ)

8 ਅੰਕ

ਯੂਨਿਟ-II

ਭੰਜਾਬੀ ਵਾਕ ਬਣਤਰ : ਮੁੱਢਲੀ ਜਾਣ ਪਛਾਣ

(ੳ) ਸਾਧਾਰਨ ਵਾਕ, ਸੰਯੁਕਤ ਵਾਕ ਅਤੇ ਮਿਸ਼ਰਤ ਵਾਕ (ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ)

(ਅ) ਬਿਆਨੀਆ ਵਾਕ, ਪ੍ਰਸ਼ਨ ਵਾਚਕ ਵਾਕ ਅਤੇ ਹੁਕਮੀ ਵਾਕ (ਪਛਾਣ ਅਤੇ ਵਰਤੋਂ)

8 ਅੰਕ

ਯੂਨਿਟ-III

ਪੈਰਾ ਰਚਨਾ

ਅਖਾਣ (ਅਖਾਣਾਂ ਦੀ ਲਿਸਟ ਨਾਲ ਨੱਥੀ ਹੈ)

8 ਅੰਕ

ਯੂਨਿਟ-IV

ਚਿੱਠੀ ਪੱਤਰ (ਘਰੇਲੂ ਅਤੇ ਦਫ਼ਤਰੀ)

ਮੁਹਾਵਰੇ (ਮੁਹਾਵਰਿਆਂ ਦੀ ਲਿਸਟ ਨਾਲ ਨੱਥੀ ਹੈ)

8 ਅੰਕ

ਅੰਕ ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਪ੍ਰਸ਼ਨ ਪੱਤਰ ਦੇ ਚਾਰ ਸੈਕਸ਼ਨ ਹੋਣਗੇ। ਸੈਕਸ਼ਨ A-D ਤੱਕ ਦੇ ਪ੍ਰਸ਼ਨ ਯੂਨਿਟ I-IV ਵਿੱਚੋਂ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰ ਸੈਕਸ਼ਨ ਵਿੱਚ ਦੋ ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ।
2. ਵਿਦਿਆਰਥੀ ਨੇ ਕੁੱਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। ਹਰ ਸੈਕਸ਼ਨ ਵਿੱਚੋਂ ਇੱਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਲਾਜ਼ਮੀ ਹੈ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਸੈਕਸ਼ਨ ਵਿੱਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
3. ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 8 ਅੰਕ ਹਨ।
4. ਪੇਪਰ ਸੈੱਟ ਕਰਨ ਵਾਲਾ ਜੇਕਰ ਚਾਹੇ ਤਾਂ ਪ੍ਰਸ਼ਨਾਂ ਦੀ ਵੰਡ ਅੱਗੋਂ ਵੱਧ ਤੋਂ ਵੱਧ ਚਾਰ ਉਪ ਪ੍ਰਸ਼ਨਾਂ ਵਿੱਚ ਕਰ ਸਕਦਾ ਹੈ।

ਅਖਾਣ

ਉਦਮ ਅੱਗੇ ਲੱਛਮੀ ਪੱਖੇ ਅੱਗੇ ਪੌਣ , ਉਹ ਦਿਨ ਡੁੱਬਾ ਜਦੋਂ ਘੋੜੀ ਚੜ੍ਹਿਆ ਕੁੱਬਾ , ਉੱਚੀ ਦੁਕਾਨ ਫਿੱਕਾ ਪਕਵਾਨ , ਉਲਟੀ ਵਾੜ ਖੇਤ ਨੂੰ ਖਾਏ , ਉੱਚਾ ਲੰਮਾ ਗੱਭਰੂ ਪੱਲੇ ਠੀਕਰੀਆਂ , ਅੱਖੀਂ ਵੇਖ ਕੇ ਮੱਖੀ ਨਹੀਂ ਨਿਗਲੀ ਜਾਂਦੀ , ਅੰਦਰ ਹੋਵੇ ਸੱਚ ਤਾਂ ਕੋਠੇ ਚੜ੍ਹ ਕੇ ਨੱਚ , ਆਪੇ ਮੈਂ ਰੱਜੀ ਪੁੱਜੀ ਆਪੇ ਮੇਰੇ ਬੱਚੇ ਜਿਉਣ , ਆਪ ਕੁਚੱਜੀ ਵਿਹੜੇ ਨੂੰ ਦੇਸ਼ , ਅੰਨ੍ਹਾ ਵੰਡੇ ਰਿਉੜੀਆਂ ਮੁੜ ਮੁੜ ਆਪਣਿਆਂ ਨੂੰ , ਅਕਲ ਵੱਡੀ ਕੇ ਮੱਝ , ਅੰਨ੍ਹਿਆਂ ਵਿੱਚ ਕਾਣਾ ਰਾਜਾ , ਆਪਣੀ ਪੀੜ੍ਹੀ ਹੇਠ ਸੇਟਾ ਫੇਰਨਾ , ਇੱਕ ਅਨਾਰ ਸੌ ਬਿਮਾਰ , ਇੱਕ ਹੱਥ ਨਾਲ ਤਾੜੀ ਨਹੀਂ ਵੱਜਦੀ , ਇੱਕ ਚੁੱਪ ਸੌ ਸੁੱਖ ਝੱਟ ਮੰਗਣੀ ਪੱਟ ਵਿਆਹ , ਸਹਿਜ ਪੱਕੇ ਸੌ ਮੀਠਾ ਹੋਵੇ , ਦਾਲ ਵਿੱਚ ਕਾਲਾ ਹੋਣਾ , ਸੱਦੀ ਨਾ ਬੁਲਾਈ ਮੈਂ ਲਾੜੇ ਦੀ ਤਾਈਂ , ਸਵੈ ਭਰੋਸਾ ਵੱਡਾ ਤੋਸਾ , ਸੌ ਦਿਨ ਚੋਰ ਦੇ ਇੱਕ ਦਿਨ ਸਾਧ ਦਾ , ਸੱਪ ਦਾ ਬੱਚਾ ਸਪੇਲੀਆ , ਸੱਪ ਮਰ ਜਾਵੇ ਲਾਠੀ ਵੀ ਨਾ ਟੁੱਟੇ , ਸਾਈਆਂ ਕਿਤੇ ਵਧਾਈਆਂ ਕਿਤੇ , ਹੰਕਾਰਿਆ ਸੌ ਮਾਰਿਆ , ਹਾਥੀ ਲੰਘ ਗਿਆ ਪੂਛ ਰਹਿ ਗਈ , ਕੁੱਛੜ ਕੁੜੀ ਸ਼ਹਿਰ ਢੰਡੇਰਾ , ਕੋਲਿਆਂ ਦੀ ਦਲਾਲੀ ਵਿੱਚ ਮੂੰਹ ਕਾਲਾ , ਕਰੇ ਕੋਈ ਭਰੇ ਕੋਈ , ਖਵਾਜੇ ਦਾ ਗਵਾਹ ਡੱਛੂ , ਖੇਤੀ ਖਸਮਾਂ ਸੇਤੀ , ਖੂਹ ਪੁੱਟਦੇ ਨੂੰ ਖਾਤਾ ਤਿਆਰ , ਘਰ ਦਾ ਭੇਤੀ ਲੰਕਾ ਢਾਹੇ , ਘਰ ਦੀ ਕੁੱਕੜੀ ਦਾਲ ਬਰਾਬਰ , ਚਿੰਤਾ ਚਿਖਾ ਬਰਾਬਰ , ਛੱਜ ਤਾਂ ਬੋਲੇ ਛਾਣਨੀ ਵੀ ਬੋਲੇ , ਛੋਟੀ ਮੂੰਹ ਵੱਡੀ ਗੱਲ , ਜਾਂਦੇ ਚੋਰ ਦੀ ਲੰਗੋਟੀ ਹੀ ਸਹੀ , ਜਿਸ ਦੀ ਕੋਠੀ ਦਾਣੇ ਉਹਦੇ ਕਮਲੇ ਵੀ ਸਿਆਣੇ , ਜਿਹੜੇ ਗੱਜਦੇ ਨੇ ਉਹ ਵਰ੍ਹਦੇ ਨਹੀਂ , ਝੱਟ ਮੰਗਣੀ ਪੱਟ ਵਿਆਹ , ਰੱਸੀ ਸੜ ਗਈ ਵੱਟ ਨੂੰ ਗਿਆ

ਮੁਹਾਵਰੇ

ਉਸਤਾਦੀ ਕਰਨੀ, ਉਂਗਲ ਕਰਨੀ, ਉੱਲੂ ਬਣਾਉਣਾ ,ਉੱਚਾ ਸਾਹ ਨਾ ਕੱਢਣਾ, ਉੱਡਦੇ ਫਿਰਨਾ ,ਉੱਘ ਸੁੱਘ ਮਿਲਣੀ,ਅੱਖਾਂ ਵਿਚ ਰੜਕਣਾ ,ਅੱਗ ਲਾਉਣਾ ,ਆਵਾ ਉਤ ਜਾਣਾ ,ਅਸਮਾਨ ਨੂੰ ਟਾਕੀਆਂ ਲਾਉਣਾ, ਅੱਖਾਂ ਵਿੱਚ ਲਾਲੀ ਉਤਰਨੀ ,ਅਕਲ ਤੇ ਪਰਦਾ ਪੈਣਾ, ਈਨ ਮੰਨਣੀ, ਈਦ ਦਾ ਚੰਨ ਹੋਣਾ, ਇੱਟ ਨਾਲ ਇੱਟ ਖੜਕਾਉਣਾ,ਸਿਰ ਫਿਰਨਾ, ਸਿਰ ਤੇ ਚੜ੍ਹਨਾ ,ਸਬਰ ਦਾ ਘੁੱਟ ਭਰਨਾ, ਸਿਰ ਪੈਰ ਨਾ ਹੋਣਾ, ਹੱਥ ਧੋ ਕੇ ਪਿੱਛੇ ਪੈਣਾ, ਹੱਥੀਂ ਛਾਂਵਾਂ ਕਰਨੀਆਂ, ਹੱਡ ਭੰਨਣੇ, ਹੱਥ ਤੰਗ ਹੋਣਾ ,ਹੱਥ ਮਲਣਾ,ਹੱਥ ਪੈਰ ਮਾਰਨਾ,ਕੰਨੀਂ ਕਤਰਾਉਣਾ, ਕੰਨ ਤੇ ਜੂੰ ਨਾ ਸਰਕਣਾ, ਕੰਨ ਘੋਸਲ ਮਾਰਨੀ, ਖਾਨਾ ਖਰਾਬ ਹੋਣਾ, ਖਾਨਿਓ ਜਾਣਾ, ਗੁੱਡੀ ਚੜ੍ਹਨੀ, ਗਲ ਪੈਣਾ ,ਗੰਗਾ ਨਹਾਉਣਾ ,ਚੜ੍ਹ ਮੱਚਣੀ, ਚੰਦ ਚਾੜ੍ਹਨਾ, ਚਾਦਰ ਵੇਖ ਕੇ ਪੈਰ ਪਸਾਰਨਾ ,ਚਕਮਾ ਦੇਣਾ ,ਛੱਕੇ ਛੜਾਉਣਾ ,ਛਾਪਾ ਮਾਰਨਾ, ਛਿੱਲ ਲਾਉਣੀ ,ਛਿੱਕੇ ਟੰਗਣਾ

Master of Science (Mathematics)

(Semester-II)

Session 2023-24

Course Title: Punjab History and Culture (C. 320 to 1000 A.D.)

(Special paper in lieu of Punjabi Compulsory)

(For those students who are not domicile of Punjab)

Course Code: FMAL-2431

COURSE OUTCOMES

After completing Semester II and course on Ancient History of Punjab students will be able to understand:

CO 1: The reasons and impact of Alexander's invasions and to comprehend various factors leading to rise and fall of empires and emergence of new dynasties and their administration specifically of Maurya rule in general and Ashok in particular

CO 2: art and architecture of Gupta period and the Indo-Greek style of architecture under Gandhara School

CO 3: To have an insight into the socio-cultural history under Harshvardhan and punjab under the stated period

CO 4: To enable students to have thorough insight into the various forms/styles of Architecture and synthesis of Indo - Greek Art and Architecture in Punjab

Master of Science (Mathematics)

(Semester-II)

Session 2023-24

Course Title: Punjab History and Culture (C. 320 to 1000 A.D.)

(Special paper in lieu of Punjabi Compulsory)

(For those students who are not domicile of Punjab)

Course Code: FMAL -2431

Examination Time: 3 Hours

Credits L-T-P: 2-0-0

Contact Hours: 2 Hrs/Week

Max. Marks: 50

Theory: 40

CA: 10

Instructions for the Paper Setter:

1. Question paper shall consist of four Units
2. Examiner shall set 8 questions in all by selecting Two Questions of equal marks from each Unit.
3. Candidates shall attempt 5 questions in 500 words, by at least selecting One Question from each Unit and the 5th question may be attempted from any of the four Units.
4. Each question will carry 16 marks

Unit-I

1. Alexander's Invasion's and Impact
2. Administration of Chandragupta Maurya with special reference to reforms introduced by Ashok

Unit-II

3. The Kushans: Gandhar School of Art
4. Gupta Empire: Golden Period-Social and cultural life, Art and Architecture)

Unit-III

5. The Punjab under Harshvardhana-**Society and Religion During the time of Harshvardhana**

6. Socio-cultural History of Punjab from 7th to 1000 A.D.

UNIT IV

7. Development of Languages and Education with Special reference to Taxila
8. Development to Art and Architecture

Suggested Readings

- B.N. Sharma: *Life in Northern India*, Delhi. 1966
- Budha Parkash, *Glimpses of Ancient Punjab*, Patiala, 1983.
- L. M Joshi (ed), *History and Culture of the Punjab*, Art-I, Punjabi University, Patiala, 1989 (3rd edition)
- L.M. Joshi and Fauja Singh (ed.), *History of Punjab*, Vol. I, Punjabi University, Patiala, 1977.

Master of Science (Mathematics)

(Semester II)

Session 2023-24

COMMUNICATION SKILLS IN ENGLISH

Course Code: FMAM-2102

COURSE OUTCOMES

At the end of this course, the students will develop the following skills:

CO 1: Enhancement of listening skills with the help of listening exercises based on conversation, news and TV reports

CO 2: The ability of Note-Taking to be able to distinguish the main points from the supporting details and the irrelevant information from the relevant one

CO 3: Improvement of speaking skills enabling them to converse in a specific situation

CO 4: Acquisition of knowledge of phonetics which will help them in learning about correct pronunciation as well as effective speaking

Master of Science (Mathematics)

(Semester II)

Session 2023-24

COMMUNICATION SKILLS IN ENGLISH

Course Code: FMAM-2102

Time: 3 hours (Theory)

Max. Marks: 50

3 hours (Practical)

Theory: 25

Practical: 15

Continuous Assessment: 10

Instructions for the paper setter and distribution of marks:

**The question paper will consist of four sections. The candidate will have to attempt five questions in all selecting one from each section and the fifth question from any of the four sections. Each question will carry 05 marks. Each question can be sub divided into two parts.
(5 x 5 = 25)**

Section-A: Two questions of theoretical nature will be set from Unit I.

Section-B: Two questions will be given to the students from Unit II.

Section-C: Two questions will be given from Unit III.

Section-D: Two questions will be set from Unit IV

Master of Science (Mathematics)

(Semester II)

Session 2023-24

COMMUNICATION SKILLS IN ENGLISH

Course Code: FMAM-2102

Unit I

Listening Skills: Barriers to listening; effective listening skills; feedback skills.

Activities: Listening exercises – Listening to conversation, News and TV reports

Unit II

Attending telephone calls; note taking and note making

Activities: Taking notes on a speech/lecture

Unit III

Speaking and Conversational Skills: Components of a meaningful and easy conversation, understanding the cue and making appropriate responses, forms of polite speech, asking and providing information on general topics

Activities: 1) Making conversation and taking turns

2) Oral description or explanation of a common object, situation or concept

Unit IV

The study of sounds of English, Stress

Situation based Conversation in English Essentials of Spoken English

Activities: Giving Interviews

Recommended Books:

1. *Oxford Guide to Effective Writing and Speaking* by John Seely.
2. *Business Communication* by Sethi, A and Adhikari, B., McGraw Hill Education 2009.
3. *Communication Skills* by Raman, M. & S. Sharma, OUP, New Delhi, India (2011).
4. *A Course in Phonetics and Spoken English* by J. Sethi and P.V. Dhamija, Phi Learning.

Master of Science (Mathematics)

(Semester II)

Session 2023-24

COMMUNICATION SKILLS IN ENGLISH

Course Code: FMAM-2102

PRACTICAL / ORAL TESTING

Time: 3 hours

Marks: 15

Course Contents:

1. Oral Presentation with/without audio visual aids
2. Group Discussion
3. Listening to any recorded or live material and asking oral questions for listening comprehension

Questions:

1. Oral Presentation will be of 5 to 7 minutes duration. (Topic can be given in advance or it can be of student's own choice). Use of audio-visual aids is desirable.
2. Group discussion comprising 8 to 10 students on a familiar topic. Time for each group will be 15 to 20 minutes.

Master of Science (Mathematics)

Semester-II

Session-2023-24

Course Title: Calculus-II

Course Code: FMAL -2333

Course Outcomes

After passing this course, the students will be able to:

CO 1: Demonstrate an understanding of sequences and series and their convergence, Cauchy criterion, sub sequence and algebra of limit of sequences.

CO 2: Know and describe the behaviour of Infinite series using various tests like comparison test, Cauchy Integral test. Ratio test, Raabe's test, logarithmic test and Gauss test etc.

CO 3: Distinguish between the absolute convergence and conditional convergence.

CO 4: Manage to solve the problem related to Fourier series expansion, Fourier series for even and odd functions and half range series.

Master of Science (Mathematics)

Semester-II

Session: 2023-24

Course Title: Calculus-II

Course Code: FMAL -2333

Examination Time: 3 Hours

L T P

4 0 0

Max. Marks: 100

Theory: 80

CA: 20

Instructions for the Paper Setter: Eight questions of equal marks (16 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit-I

Sequence, sub sequence, bounded sequences, monotone sequences, convergence, Cauchy criterion, algebra of limit of sequences (proofs with ϵ -N rigor), Sandwich Theorem

Unit-II

Infinite series, Sequences of partial sums, convergence of series, series of non-negative terms, comparison tests, Cauchys' Integral test. Ratio test, Raabe's test, logarithmic test and Gauss test (all tests with proofs).

Unit-III

Alternating series, absolute and conditional convergence, Leibnitz Theorem, Convergence of Power Series, Taylor Series, Error estimates

Unit-IV

Periodic functions, trigonometric series, Fourier series expansion, Fourier series for even and odd functions, half range series.

Text Book:

George B. Thomas and Ross L. Finney, Calculus and Analytic Geometry, Pearson publication, 9th Edition, 1998.

Reference Books:

1. S. C. Malik and S. Arora, Mathematical Analysis, New Age International Publishers, New Delhi, 2nd Edition, 2005.
2. Sudhir R. Ghorpade and B.V. Limaye, A course in calculus and real analysis, Springer, 2006.

3. E. Kreyszig, Advanced Engineering Mathematics, Wiley Publication, 10th Edition, 2011.

Master of Science (Mathematics)

Semester-II

Session-2023-24

Course Title: Matrices and Theory of Equations

Course Code: FMAL -2334

Course Outcomes

After passing this course, the students will be able to:

CO 1: Understand the concept of matrix congruence of skew symmetric matrices and its reduction in real field.

CO 2: Explain how all polynomials can be broken down by using Fundamental Theorem of Algebra to provide structure for abstraction into fields like Modern Algebra. Also able to solve system of linear equations and obtain Eigen values, Eigen vectors, minimal and characteristic equation of a matrix and to apply it in advanced dynamics and electric current.

CO 3: To find the relations between the roots and coefficients of general polynomial equation in one variable.

CO 4: Distinguish between solution of cubic equations and Bi-quadratic equations.

Master of Science (Mathematics)

Semester–II

Session-2023-24

Course Title: Matrices and Theory of Equations

Course Code: FMAL -2334

Examination Time: 3 Hours

L T P

4 0 0

Max. Marks: 100

Theory: 80

CA: 20

Instructions for the Paper Setter: Eight questions of equal marks (16 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit-I

Hermitian, Skew-Hermitian, Orthogonal and Unitary matrices, Linear independence/dependence of row and column vectors, Elementary operations on matrices, Inverse of a matrix using Gauss Jordan method, Row rank, column rank and their equivalence, System of linear equations and conditions for consistency

Unit-II

Eigen values, Eigen vectors and the characteristic equation of a matrix, Cayley-Hamilton Theorem and its applications, Polynomials, zeros of a polynomial, division algorithm, greatest common divisor, repeated roots, equal roots, unique factorization of polynomials over fields, The fundamental theorem of algebra.

Unit-III

Relationship between roots and the coefficients, Fundamental theorem of symmetric polynomials (without proof). Evaluation of symmetric functions of roots, Rational roots of polynomials with integral coefficients. Descartes rule of sign.

Unit-IV

Strum's theorem (statement only), Solution of cubic equation using Cardano's method, and biquadratic equation by Descartes method and Ferrari's method.

Text Book:

R. Kumar, Algebra & Trigonometry, Pardeep publication, Jalandhar, Sixteenth edition, 2003.

Reference Books:

1. A. Kurosh, Higher Algebra, Moscow Mir Publisher, 1972.
2. R.N. Gupta, S. Singh and R.J. Hans-Gill, Theory of Equations. (Lecture notes for inter University Leadership project in Mathematics.)
3. K.B. Datta, Matrix and Linear Algebra, Prentice Hall of India Pvt. Ltd., 2004.
4. P.B. Bhattacharya, S.K. Jain and S.R. Nagpal, First course in Linear Algebra, Wiley Eastern, New Delhi 1983.
5. S. Narayan & P.K. Mittal, A Text Book of Matrices, S. Chand & Co. Ltd., New Delhi, 2010.
6. J. Gilbert & L. Gilbert, Linear Algebra and Matrix Theory, Academic Press, Reprint 1995.

Master of Science (Mathematics)

Semester-II

Session-2023-24

Course Title: Solid Geometry

Course Code: FMAL -2335

Course Outcomes

After passing this course, the students will be able to:

CO 1: Describe the concept of planes, its classification, and trace different types of conicoids by thoroughly understanding shifting of origin and rotation of axis.

CO 2: Understand the geometry of sphere in depth including the concepts of tangent, normal and intersection.

CO 3: Demonstrate the concept of cone, classification of cone, intersection of line and cone, reciprocal cone. They will be able to understand the concept of cylinder including enveloping cylinder and its limiting form.

CO 4: Manage to find surface of revolution and identify the conicoids and represent it in the form of hyperboloid, ellipsoid, paraboloid.

Master of Science (Mathematics)

Semester-II

Session-2023-24

Course Title: Solid Geometry

Course Code: FMAL -2335

Examination Time: 3 Hours

L T P

4 0 0

Max. Marks: 100

Theory: 80

CA: 20

Instructions for the Paper Setter: Eight questions of equal marks (16 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section. The question paper must contain 30% of the article/theory from the syllabus.

Unit-I

Intersection of three planes, condition for three planes to intersect in a point or along a line or to form a prism, change of axes, shift of origin, rotation of axes, sphere and section of a sphere by a plane. Sphere through a given circle. Intersection of a line and sphere.

Unit-II

Tangent and normal, tangent plane, angle of intersection of two spheres and condition of orthogonality, power of a point w.r.t. a sphere, Radical planes, radical axis, radical centre, coaxial family of spheres, limiting points.

Unit-III

Cylinder: Cylinder as surface generated by a line moving parallel to a fixed line and through fixed curve. Right circular cylinder, enveloping cylinder, Cone: homogeneous equation of cone in second degree in x, y, z , Quadratic cone, reciprocal cone, right circular cone, enveloping cones.

Unit-IV

Surface of revolution, Identification of quadratic surfaces: Ellipsoid, hyperboloid, paraboloid.

Text Book

P.K Jain and K.Ahmed, A text book of Analytical Geometry of three dimensions, Wiley Eastern Ltd, New Delhi, 2nd edition, 1994.

Master of Science (Mathematics)

Semester-II

Session-2023-24

Course Title: Dynamics

Course Code: FMAL -2336

Course Outcomes

After passing this course, the students will be able to:

CO 1: Demonstrate the basic relations between distance, time, velocity and acceleration, manage to solve the problems of Newton's Laws of Motion and the motion of particles connected by a string.

CO 2: Illustrate motion along a smooth inclined plane. Solve different types of problems with Variable Acceleration. Discuss Simple Harmonic Motion.

CO 3: Understand the concept of projectile, oscillating system.

CO 4: Define Work, Power and Energy and explain their relationship. Use measurement tools to apply the concepts of Work and power to solve real life problems. Identify the different types of energy.

Master of Science (Mathematics)

Semester-II

Session-2023-24

Course Title: Dynamics

Course Code: FMAL -2336

Examination Time: 3 Hours

Max. Marks: 100

L T P

Theory: 80

4 0 0

CA: 20

Instructions for the Paper Setter: Eight questions of equal marks (16 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section. The question paper must contain 30% of the article/theory from the syllabus.

Unit-I

Rectilinear motion in a straight line with uniform acceleration, Newton's laws of motion.
Motion of two particles connected by a string.

Unit-II

Motion along a smooth inclined plane. Variable acceleration. Simple Harmonic Motion.

Unit-III

Curvilinear motion of particle in a plane, Definition of velocity and acceleration, projectiles.
Oscillations: Free Vibrations, Simple Pendulum, Conical Pendulum.

Unit-IV

Work, Power and Energy: Kinetic and Potential energy, Conservative forces. Theorem of conservation of energy. Work done against gravity.

Text Book:

R. Kumar, Fundamentals of Dynamics, Pardeep Publications, Jalandhar city, second edition, 2004

Reference Books:

1.F. Chorlton, Text Book of Dynamics, CBS Publishers, New Delhi, second edition, 2004 (Scope in chapters 3,8).

2. S.R. Gupta, Elementary Analytical Dynamics, Sultan Chand and Company, New Delhi, Fourteen Edition, 1983(Scope in chapters 1,2,3)

Master of Science (Mathematics)

Semester–II

(Session 2023-24)

Course Title: Modern Physics

Course Code: FMAM-2396

Course Outcomes

On passing this course the students will be able to

CO1: understand wave particle duality and use of this duality in studying crystal structure.

CO2: understand radioactivity and use of radio isotopes and radiation.

CO3: understand working and uses of nuclear radiation detectors.

CO4: Know about elementary particles and cosmic rays, their properties and conservation rules.

Master of Science (Mathematics)

Semester-II

(Session 2023-24)

Course Title: Modern Physics

Course Code: FMAM-2396

Examination Time: 3 Hours

L T P

Total Teaching hours: 60

3 0 1

Passing marks: 35%

Max.Marks:100

Theory:60

CA:20

Instructions for the Paper Setters:

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section. Each question carries **12 marks**.

Section-A

Dual Nature of Matter and Radiation: De Broglie's hypothesis, electron diffraction experiments of Davission and Germer, Wave group and particle velocities, Heisenberg's uncertainty principle, principle of the electron microscope, Diffraction of X-rays from crystals, Planck's quantum hypothesis, Bragg's law of determination of structure of simple crystals.

Section-B

Radioisotopes and their Application: Radioactive decay laws, Uranium and Carbon dating, introduction to α , β and γ decays, Radioisotopes, their production and separation, mass spectrograph, uses of radioisotopes in medicine, agriculture and geology Radiation doses and their units, Biological effects of radiation.

Section-C

Nuclear detection: Principle, construction and application of gas-filled detectors
Ionization detector, proportional counter, Geiger Muller detector, Cloud chamber,
Scintillation counter and photographic emulsions as detectors.

Section-D

Elementary particles and cosmic rays, Classification of elementary particles and their
properties, conservation laws. Antiparticles, Origin and general characterization of
cosmic rays (Primary and Secondary)

Suggested Readings:

1. Concepts of Modern Physics: A. Beiser.
2. Essentials of Modern Physics: V. Acota and C. L. Grown
3. Fundamentals of Modern Physics: B.D. Duggal and C. L. Chhabra
4. Radiation and Particle Physics by KS Thind, Vishal Publications

Master of Science (Mathematics)

(Semester-II)
(Session 2023-24)

COURSE CODE: FMAM-2396(P)

Physics Lab-II
(Practical)

Maximum Marks: 20

Examination Time: 3 Hour

Credits : 1

Pass Marks: 35%

Instructions to Practical Examiner

Question paper is to be set on the spot jointly by the external and internal examiners. Two copies of the same to be submitted for the record to COE office, Kanya Maha Vidyalaya, Jalandhar

General Guidelines for Practical Examination

I. The distribution of marks is as follows: **Marks: 20**

i) One experiment **7 Marks**

ii) Brief Theory **3 Marks**

iii) Viva–Voce **5 Marks**

iv) Record (Practical file) **5 Marks**

II. There will be one sessions of 3 hours duration. The paper will have one session.

Paper will consist of 8 experiments out of which an examinee will mark 6 experiments and one of these is to be allotted by the external examiner.

III. Number of candidates in a group for practical examination should not exceed 12.

IV. In a single group no experiment is to be allotted to more than three examinees in any group.

1. To Study characteristics of a solar cell.
2. To determine the ionization potential of mercury.
3. To study the photoelectric effect and determine the value of Planck's constant.
4. Study of variation of light intensity with distance using photovoltaic cell (Inverse Square Law).
5. To determine e/m ratio of electron using long solenoid method.
6. To draw the plateau of a GM counter and find the operating voltage of GM tube.
7. To study the absorption coefficient beta particles in aluminium using GM counter and find the absorption coefficients.
8. Study of C.R.O. as display and measuring device, Study of Sine wave, square wave signals
9. To measure an accessible distance between two points using a sextant.

10.To measure an inaccessible distance between two points using a sextant.

Text and Reference Books:

1. Practical Physics Vol.II, T.S. Bhatia, Gursharan Kaur, Iqbal Singh, Vishal Publications
2. Practical Physics, C.L. Arora, S. Chand & Co.

Master of Science (Mathematics)

Semester–II

Session 2023-24

Course Code: FMAM-2137

Computer Fundamentals and Introduction to C Programming Language

Course Outcome:

After passing course the student will be able to:

CO1: Articulate various kind of software and hardware used in computers.

CO2: Work with different set of operations in C programming.

CO3: Apply various control statements of C Programming Language for designing solutions to different real world problems.

CO4: Implement single and multidimensional arrays for representing complex data collections.

Master of Science (Mathematics)

Semester–II

Session 2023-24

Course Code: FMAM-2137

Computer Fundamentals and Introduction to C Programming Language

Examination Time: (3+3) Hours

Max. Marks: 100

L-T-P: 3-0-1

Theory: 50

Practical: 30

Credit: 4

CA: 20

Instructions for the Paper Setters:

Eight questions of equal marks (10 Marks each) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

UNIT-I

Introduction : Early computing devices, diverse uses of computers, block diagram, use of CPU and I/O devices, software and hardware, application software and system software, primary and secondary storage devices, Flowcharts and algorithms.

UNIT-II

Introduction to 'C' language: Tokens, Identifiers, Keywords, constants and literals, Data types. Operators: arithmetic, relational and logical, precedence and order of evaluation

UNIT-III

Control Statements: Decision control, loop control and case control. Functions and storage classes.

UNIT-IV

Arrays: initializing an array. one dimensional arrays: array manipulation; searching, insertion, deletion of an element from an array; finding the largest/smallest element in array; two dimensional arrays, addition/multiplication of two matrices, program to transpose a square matrix; null terminated strings as array of characters.

References / Textbooks:

1. E. Balagurusamy, Programming in ANSI C, Tata McGraw-Hill (2002), 5th edition.
2. Stephen G. Kochan, Programming in C, Pearson Education (2015), 4th edition.
3. Rachhpal Singh, Gurvinder Singh, Windows based computer courses, Kalyani Publishers (2011).
4. Yashwant Kanetkar, Let us C, BPB Publications (2020), 17th edition.
5. R.S. Salari, Application Programming in C, Khanna Book Publishing (2012), 4th edition.
6. Anshuman Sharma, Learn programming in C, Lakhanpal Publishers (2016), 7th edition.