KG COLLEGE OF ARTS AND SCIENCE

Autonomous Institution | Affiliated to Bharathiar University

Accredited with A++ Grade by NAAC

ISO 9001:2015 Certified Institution

KGiSL Campus, Saravanampatti, Coimbatore – 641 035

Regulations 2025-26 for Postgraduate Programme

Learning Outcomes Based Curriculum Framework (LOCF) model with

Choice Based Credit System (CBCS)

Programme: M.Sc. Mathematics

Programme Code: MMA

(Applicable for the Students admitted during the Academic Year 2025 – 26 onwards)

Eligibility

The student should have passed B.Sc. Mathematics/with Computer Application / Applied Mathematics.

(As per the eligibility conditions given by Bharathiar University Ref. BU/R/B3-B4/ Eligibility Condition/2025/7960 dated 08/05/2025).

Program Learning Outcomes (PLOs)

The successful completion of the M.Sc. Mathematics Programme shall enable the students to:

PLO1	Hone mathematical reasoning, problem-solving skills and digital literacy which pave way to become a software developer.
PLO2	Explore core mathematics with profound learning that nurtures the research skills.
PLO3	Engage with mathematical softwares which demonstrate a dedication to continuous learning in mathematics.
PLO4	Incorporate collaboration with non-profit organizations and government bodies through internships and industry partnerships.
PLO5	Demonstrate ethical and professional value in providing services in the relevant field including entrepreneurial skills

M.Sc. Mathematics

Distribution of Credits and Hours for all the Semesters

Part	Course Category	No. of Courses	Hours		Credits		Total Credits	Semester
III	Core (6 hrs/week)	8	8 X 6	48	8 X 4	32	74	1 - 3
	Core (5 hrs/week)	3	3 X 5	15	3 X 4	12		1,3 & 4
	Embedded Course	2	2 X 7	14	2 X5	10		3 & 4
	Core Lab (3 hrs/week)	1	1 X 3	3	1 X 2	2		2
	Elective (5 hrs/week)	2	2 X 5	10	2 X 3	6		1 & 2
	Elective (4 hrs/week)	2	2 X 4	8	2 X 3	6		3 & 4
	Project	1	1 X 10	10	1 X 6	6		4
	Skill Enhancement (SEC) (2 hrs/week)	3	3 X 2	6	3 X 2	6	6	2 - 4
	Internship	-	-	-	1 X 2	2	2	3
IV	Ability Enhancement Compulsory Course (AECC)	4	3 X 2	6	4 X 2	8	8	1 - 4
	Total	**26**		**120**		**90**	**90**	

Consolidated Semester wise and Component wise Hours and Credits distribution

Semester	Part III		Part V		Total	
	Hrs.	Credits	Hrs.	Credits	Hrs.	Credits
I	28	19	2	2	30	21
II	28	19	2	2	30	21
III	30	24	-	2	30	26
IV	28	20	2	2	30	22
Total	**114**	**82**	**6**	**8**	**120**	**90**

Curriculum Framework

M.Sc. Mathematics

Semester – 1									
Course Code	**Part**	**Course Category**	**Course Name**	**Hrs./ week**	**Examination**				**Credits**
					Duration in hrs.	**Max Marks**			
						CIA	**ESE**	**Total**	
25MMA11C	III	Core – I	Abstract Algebra	6	3	25	75	100	4
25MMA12C	III	Core – II	Real Analysis	6	3	25	75	100	4
25MMA13C	III	Core – III	Ordinary Differential Equations	6	3	25	75	100	4
25MMA14C	III	Core – IV	Mechanics	5	3	25	75	100	4
25MMA1AE	III	Elective – I	Number Theory	5	3	25	75	100	3
25MMA1BE			Differential Geometry						
25MMA1CE			Optimization Techniques						
25SOF1AE	IV	AECC – I	Soft Skills	2	2	-	50	50	2
			Total	**30**				**550**	**21**

Semester-1

Course Code	Course Name	Category	Hours / Week	Credits
25MMA11C	**Abstract Algebra**	Core-I	6	4

Course Objectives

The Course intends to cover

- Various algebraic structures.
- Galois theory and solvability of polynomial equations by radicals.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO	CLO Statements	Knowledge Level
CLO1	Understand Sylow's theorem and its applications.	K2
CLO2	Recognize the concept of various rings.	K2
CLO3	Apply polynomials over rational fields and splitting fields	K3
CLO4	Analyze Galois theory over the rationals to ensure secure communications and reliable data transmission enhances competency skill of a coder and a cryptographer.	K4
CLO5	Analyze the concepts of solvability by radicals and finite fields.	K4
K2 - Understand; **K3** - Apply; **K4** - Analyze		

CLO – PLO Mapping

CLOs/PLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	2	1	1	1	2
CLO2	3	3	2	1	1
CLO3	2	1	3	2	3
CLO4	2	1	3	3	3
CLO5	1	2	2	3	2
1 - Slight (low) **2** - Moderate (medium) **3** - Substantial (high)					

Core - I: Abstract Algebra

Unit	Content	No. of Hours
I	**Group Theory:** Counting principle - Another counting principle - Sylow's Theorem - Direct products.	18
II	**Ring Theory:** Euclidean rings - A particular Euclidean ring - polynomial rings.	18
III	**Ring Theory:** Polynomials over rational field. **Fields:** Extension fields - Roots of polynomials.	18
IV	**Fields:** More about roots-The Elements of Galios theory.	18
V	**Fields:** Solvability by radicals. **Selected topics:** Finite fields.	18
	Total Hours	**90**

Text Book

1	Herstein I.N(2022)," Topics in Algebra" (Ed. 2), John Wiley and Sons.
	Unit I: Chapter 2: Sections 2.5, 2.11, 2.12,2.13
	Unit II: Chapter 3 : Sections 3.7 - 3.9
	Unit III: Chapter 3 : Section 3.10
	              Chapter 5 : Sections 5.1,5.3
	Unit IV: Chapter 5 : Sections 5.5,5.6
	Unit V: Chapter 5 : Section 5.7
	              Chapter 7 : Section 7.1

Reference Books

1	Serge Lang (2005), "Algebra", Addison-Wesley, MA.
2	John B. Fraleigh (2003) "A First Course in Abstract Algebra", Addison Wesley, MA.
3	Artin M (2015), "Algebra", Prentice-Hall of India, New Delhi.

Web Resources (Swayam / NPTEL)

1.	https://nptel.ac.in/courses/111105112

Course Code	Course Name	Category	Hours / Week	Credits
25MMA12C	**Real Analysis**	**Core-II**	**6**	**4**

Course Objectives

The Course intends to cover
- Function of a real variable using Riemann Stieltjes integral and gain its properties.
- The validation of convergence theorems along with their practical applications.
- Lebesgue measure, measurable functions, and the Lebesgue integral.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO	CLO Statements	Knowledge Level
CLO1	Remember and apply the concepts of continuity, compactness and connectedness of functions in solving related problems.	K1
CLO2	Recall the derivatives of vector valued functions.	K1
CLO3	Apply the Riemann Stieltjes integral and bring its properties and rectifiable curves.	K3
CLO4	Evaluate the advanced uniform convergence with related theorems.	K5
CLO5	Evaluate the derivatives of higher order differentiation and determinants.	K5
K1 – Remember; **K3** - Apply; **K5** – Evaluate		

CLO – PLO Mapping

CLOs/PLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	1	2	2	3	1
CLO2	3	2	2	1	2
CLO3	1	2	3	1	2
CLO4	1	2	3	1	2
CLO5	2	1	3	2	3
3 - Substantial (high)		**2** - Moderate (medium)		**1** - Slight (low)

Core - II: Real Analysis

Unit	Content	No. of Hours
I	**Continuity:** Limits of functions-Continuous functions-Continuity and Compactness- Continuity and Connectedness- Discontinuities- Monotonic functions- Infinite limits and Limits at Infinity.	18
II	**Differentiation:** The Derivative of a Real function- Mean Value Theorems- The Continuity of Derivatives- L'Hospital's Rule- Derivatives of Higher Order- Taylor's Theorem- Differentiation of Vector-valued Functions	18
III	**The Riemann-Stieltjes Integral:** Definition and existence of the integral – Properties of the integral – Integration and differentiation – Integration of vector-valued functions – Rectifiable curves.	18
IV	**Sequences and Series of Functions:** Uniform convergence-Uniform convergence and continuity–Uniform convergence and integration – Uniform convergence and differentiation – Equi- continuous families of functions – The Stone - Weierstrass theorem.	18
V	**Function of Several Variables:** Linear transformations –Differentiation - The contraction principle – The inverse function theorem – The implicit function theorem –Determinants – Derivatives of higher order – Differentiation of integrals.	18
	Total Hours.	**90**

Text Book

1	Rudin.W (2013),"Principles of Mathematical Analysis", McGraw Hill, New York. Unit I: Chapter 4: Pg. No. : 83-97 Unit II Chapter 5: Pg. No. : 103-113 Unit III: Chapter 6: Pg. No. :120-137 Unit IV: Chapter 5: Pg. No.: 147-164 Unit V: Chapter 9: Pg. No. : 204-228, 231-237

Reference Books

1	Bartle R.G," Elements of Real Analysis", John Wily and Sons, New York.
2	Walter Rudin,(2023),"Real and Complex Analysis",McGraw-Hill,New York.
3	Royden H.L (1988), "Real Analysis",MacMillan,New York.

Web Resources (Swayam / NPTEL)

1	https://nptel.ac.in/courses/111101100

Course Code	Course Name	Category	Hours / Week	Credits
25MMA13C	**Ordinary Differential Equations**	**Core-III**	**6**	**4**

Course Objectives

The Course intends to cover

- The theory and methods of ordinary differential equations.
- The Existence and Uniqueness theorem and its ramifications.
- Problems arising from many applications such as mathematical models of physical and engineering processes.
- The application of the methods of undetermined coefficients and variation of parameters.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO	CLO Statements	Knowledge Level
CLO1	Apply the Wronskian to check if solutions of homogeneous equations are independent	K3
CLO2	Use the concept of annihilator to simplify complex equations, making it easier to predict behavior and design systems effectively.	K3
CLO3	Implement the concept of Wronskian, reduction of order, and analytic techniques to solve homogeneous equations, initial value problems, and the Legendre equation	K3
CLO4	Analyze and solve Euler and Bessel equations, including second-order equations with regular singular points.	K4
CLO5	Solve the differential equations using various successive approximation methods.	K4
K3- Apply; **K4** – Analyze.		

CLO – PLO Mapping

CLOs/PLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	3	2	3	3	2
CLO2	3	3	3	2	1
CLO3	2	3	3	2	2
CLO4	2	3	3	3	3
CLO5	2	3	3	2	1
3 - Substantial (high)		**2** - Moderate (medium)		**1** - Slight (low)	

Core - III: Ordinary Differential Equations

Unit	Content	No. of Hours
I	**Linear Equations with Constant Coefficients:** The second order homogeneous equations – Initial value problems – Linear dependence and independence - A formula for the Wronskian – The non-homogeneous equation of order two.	18
II	**Linear Equations with Constant Coefficients of order n:** The homogeneous equation of order n – Initial value problems for n^{th} order equations – The non-homogeneous equation of order n – A special method for solving the non-homogeneous equation – Algebra of constant Coefficient operators.	18
III	**Linear Equations with Variable Coefficients** Initial value problems for the homogeneous equation- Solutions of the homogeneous equation – The Wronskian and linear independence –Reduction of the order of a homogeneous equation - Homogeneous equation with analytic coefficients – The Legendre equation.	18
IV	**Linear Equations with Regular Singular Points:** Euler equation - Second order equations with regular singular points – Exceptional cases – Bessel equation.	18
V	**Existence and Uniqueness of Solutions to First order Equations:** Equation with variables separated– Exact equations – The method of successive approximations – The Lipschitz condition –Convergence of the successive approximations.	18
	Total Hours.	**90**

Text Book	
1	Coddington E.A(2023),"An Introduction to Ordinary Differential Equations", Prentice Hall of India Ltd,New Delhi. Unit I: Chapter II Sections: 2.1 – 2.6 Unit II: Chapter II Sections: 2.7-2.8, 2.10-2.12 Unit III: Chapter III Sections: 3.2 – 3.5, 3.7-3.8 Unit IV: Chapter II Sections: 4.2 -4.3, 4.6-4.7 Unit V: Chapter IV Sections: 5.1 – 5.6

Reference Books	
1	Deo S.C(2017),Lakshminathan.V,Raghavendra.V,"Textbook of Ordinary Differential Equation",Tata McGraw Hill,New Delhi.
2	Hartman P,"Ordinary Differential Equations",Wiley,New York.

Web Resources (Swayam / NPTEL)	
1	https://nptel.ac.in/courses/111107111

Course Code	Course Name	Category	Hours / Week	Credits
25MMA14C	**Mechanics**	**Core-IV**	**5**	**4**

Course Objectives

The course intends to cover

- A solid foundation for understanding basic principles of mechanics and some classical problems.
- Lagrangian and Hamiltonian formulations of classical mechanics thoroughly.
- The importance and consequences of canonical transformations.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO	CLO Statements	Knowledge Level
CLO1	Understand the basic concepts of the mechanical system, generalized coordinates, work, energy and momentum.	K2
CLO2	Apply the derivative of Lagrange's equations and integrals of motion.	K3
CLO3	Analyse the Hamilton's Principle and other variational principles and gain ability to solve the problems arising in practical situations	K4
CLO4	Analyse and develop the Hamilton's Principal function and Hamilton Jacobi equation	K4
CLO5	Evaluate differential forms and generating functions which is used in checking the numerical models that give valuable insights to rock mechanics.	K5
K2 – Understand ; **K3**-Apply; **K4**-Analyse; **K5**-Evaluate		

CLO – PLO Mapping

CLOs/ PLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	2	1	1	2	2
CLO2	2	1	1	3	2
CLO3	1	1	1	2	1
CLO4	2	1	1	2	2
CLO5	2	2	2	3	2
3 - Substantial (high)		**2** - Moderate (medium)		**1** - Slight (low)	

Core – IV: Mechanics

Unit	Content	No. of Hours
I	**Introductory Concepts:** The mechanical system – Generalized coordinates – Constraints – Virtual work – Energy and momentum.	15
II	**Lagrange's Equations:** Derivations of Lagrange's equations- Examples –Integrals of the motion.	15
III	**Hamilton's equations:** Hamilton's principle – Hamilton's equations.	15
IV	**The Hamilton - Jacobi Theory:** Hamilton's principle function –The Hamilton - Jacobi equation – Separability.	15
V	**Canonical Transformations:** Differential forms and generating functions – Lagrange and Poisson brackets.	15
	Total Hours.	**75**

Text Book

1	Donald.T.Greenwood,(2003) Classical Dynamics, New Edition, Dover publications. Unit I : Chapter 1 : Sections: 1.1 -1.5 Unit II: Chapter 2 : Sections: 2.1 -2.3 Unit III: Chapter 4 : Sections: 4.1 - 4.2 Unit IV: Chapter 5 : Sections: 5.1 -5.3 Unit V : Chapter 6 : Sections: 6.1 & 6.3

Reference Books

1	Goldstein.H (2002) Poole.C,Safko.J,"Classical Mechanics",Pearson Education,Inc, New Delhi.
2	Douglas Gregory.R (2006),"Classical Mechanics",Cambridge University Press.

Web Resources (Swayam / NPTEL)

1	https://onlinecourses.nptel.ac.in/noc20_ph18/preview

Course Code	Course Name	Category	Hours / Week	Credits
25MMA1AE	**Number Theory**	**Elective-I**	**5**	**3**

Course Objectives

The Course intends to cover

- The fundamental and advanced topics in number theory, equipping students with both theoretical understanding and practical problem-solving skills.
- Solve linear and higher-degree congruences using various theorems, including Euler's and Wilson's theorems.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO	CLO Statements	Knowledge Level
CLO1	Interpreting the concept of quotients, remainders and greatest common divisors by using Euclidean algorithm.	K2
CLO2	Understand the definitions of congruence, residue classes and least residues	K2
CLO3	Implementing the concept of prime power moduli and quadratic residues	K3
CLO4	Determine multiplicative inverses, modulo n and use to solve linear congruence.	K3
CLO5	Acquire the knowledge on linear diaphantine equation	K4
K1 - Remember; **K2** - Understand; **K3** - Apply; **K4** – Analyze		

CLO – PLO Mapping

CLOs/PLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	2	2	3	3	3
CLO2	3	3	3	3	3
CLO3	3	2	3	3	3
CLO4	2	3	3	3	3
CLO5	3	3	2	3	3
3 - Substantial (high)		**2** - Moderate (medium)		**1** - Slight (low)	

Elective IA: Number Theory

Unit	Details	No. of Hours
I	**Divisibility** : Divisibility and Euclidean algorithm.	15
II	**Congruences** : Euler's theorem, Wilson's theorem, Solutions of congruences, Congruences of degree, Chinese remainder theorem, The functions $\phi(n)$, Congruences of higher degree.	15
III	**Prime power moduli** : Prime modulus- Quadratic residues.- Quadratic reciprocity.	15
IV	**Quadratic Reciprocity and Quadratic Forms** :The Jacobi symbol – Greatest integer function - Arithmetic functions – The Moebius Inversion formula	15
V	**Diophantine equations** : Multiplication of arithmetic functions, Linear Diophantine equations – The equation $x^2 + y^2 = z^2$ - The equation $x^4 + y^4 = z^2$.	15
	Total Hours.	75

Text Book

1.	Ivan Nivan and Herberts Zucherman (1991), "An Introduction to Theory of Numbers, 5th Wiley Eastern Limited, New Delhi.
	
	 Unit-I: Chapter I: Sections 1.1 – 1.3
	
	 Unit-II: Chapter II: Section: 2.1 – 2.5
	
	 Unit-III: Chapter II: Section: 2.6 – 2.7
	
	            Chapter III: Sections: 3.1 – 3.2
	
	 Unit-IV: Chapter III: Sections: 3.
	
	            Chapter IV: Sections:4.1-4.3
	
	 Unit -V: Chapter IV: Sections:4.4
	
	            Chapter V: Sections:5.1- 5.6

Reference Books

1	Tom Apostol (1998), Introduction to Analytic Number Theory, Narosa Publications, New Delhi.
2	George E. Andrews (1994), Number Theory, Hindustan Publishing, New Delhi.

Web Resources (Swayam / NPTEL)

1	https://nptel.ac.in/courses/106103015

Elective – IB: Differential Geometry

Unit	Content	No. of Hours
I	**Curves:** Curves- Analytic representation - Arc length - Osculating plane – Curvature- Torsion - Formula of Frenet.	15
II	**Natural equations:** Contact - Natural equations - Helices - General solutions of natural equations - Evolutes and involutes.	15
III	**Elementary theory of surface:** Elementary theory of surface - Analytic representation - First fundamental form - Normal, tangent plane - Developable surfaces.	15
IV	**Second fundamental form:** Second fundamental form- Meusnier's theorem - Euler's Theorem - Dupin's indicatrix - Some surfaces.	15
V	**The Fundamental Equations:** Gauss - The equation of Gauss -Weingarten - The theorem of Gauss and the equations of Codazzi - Some applications of the Gauss and Codazzi equations.	15
	Total Hours.	**75**

Text Book	
1	Dirk Struik J(1994). "Lectures on Classical Differential Geometry", Dover Publications, INC. New York. Unit I : Chapter 1 Section: 1.1 - 1.6 Unit II : Chapter 1 Section: 1.7 - 1.11 Unit III: Chapter 2 Section: 2.1 - 2.4 Unit IV: Chapter 2 Section: 2.5 - 2.8 Unit V : Chapter 3 Section: 3.1 - 3.3, 3.5

Reference Books	
1	Bar,Christian (2011),"Elementary Differential Geometry", Cambridge University Press.
2	Willmore T J (2002), "An Introduction to Differential Geometry", Oxford University Press, (17th Impression) New Delhi. (Indian Print)
3	Thorpe J A, (1979), "Elementary topics in Differential Geometry", Under- graduate Texts in Mathematics, Springer - Verlag.
4	Kobayashi S and Nomizu K(1963), "Foundations of Differential Geometry", Inter science Publishers.

Web Resources (Swayam / NPTEL)	
1	https://onlinecourses.nptel.ac.in/noc25_ma57/preview
2	https://onlinecourses.swayam2.ac.in/cec25_ma08/preview

Course Code	Course Name	Category	Hours / Week	Credits
25MMAICE	Optimization Techniques	Elective-I	5	3

Course Objectives

The Course intends to cover

- The techniques for solving real-life problems using linear and dynamic programming.
- The inventory management problems under uncertainty using appropriate decision-making methods.
- The queuing and non-linear programming models using advanced optimization techniques.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO	CLO Statements	Knowledge Level
CLO1	Explain various techniques to solve real life problems expressed in terms of LPP.	K2
CLO2	Solving LPP through Dynamic Programming	K3
CLO3	Solve inventory management problems by using appropriate methods for handling uncertain demand scenarios.	K3
CLO4	Analyse various models of queuing theory	K4
CLO5	Evaluate non-linear problems using Lagrangian, Kuhn–Tucker, and other advanced programming methods.	K4
K2 - Understand; **K3** -Apply; **K4-** Analyze;		

CLO – PLO Mapping

CLOs/PLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	2	1	3	2	3
CLO2	3	2	3	3	2
CLO3	3	2	3	2	1
CLO4	2	1	3	2	3
CLO5	3	2	3	3	2
3 - Substantial (high)		**2** - Moderate (medium)		**1** - Slight (low)	

Elective IC - Optimization Techniques

Unit	Content	No. of Hours
I	**Integer Programming Formulations** – Gomory's construction–Fractional cut method(all integer)–The Cutting – Plane Algorithm – Branch–and–Bound Technique – Zero– One Implicit Enumeration Algorithm.	15
II	**Application of Dynamic Programming:** Capital Budgeting Problem – Reliability Improvement Problem – Stage–coach Problem – Cargo Leading Problem – Minimizing Total Tardiness in Single Machine Scheduling Problem – Optimal Subdividing Problem – Solution of Linear Programming Problem through Dynamic Programming.	15
III	**Inventory Decisions**–Cost Associated– with Inventories – Factors Affecting inventory – Economic Order Quantity–Deterministic Inventory Problems with No Shortages– Deterministic inventory Models with shortages–EOQ with Price Breaks–Multi Item Deterministic problems–Inventory Problems with Uncertain Demand.	15
IV	**Queuing System**–Elements of Queuing System – Operating Characteristics of Queuing System – Classification of Queuing Models– Model–I (M/M/1):(∞/FIFO), Model–II (M/M/1) : (N/FIFO), Model–III (M/M/C):(∞/FIFO), Model–IV (M/M/C):(N/FIFO). Problems in above four models.	15
V	**Non Linear Programming:** Lagrangian Method –Jacobi Method– Kuhn–Tucker Method – Quadratic Programming – Separable Programming – Chance–Constrained Programming or Stochastic Programming.	15
	Total Hours.	**75**

Text Book

1	Hamdy A. Taha (2023),Operations Research, eleventh edition, Prentice–Hall of India private Limited, New Delhi,
	
	 Unit I: Chapter 2 P.No. 2.1-2.23
	
	             Chapter 3 P.No.: 3.1-3.16
	
	 Unit II: Chapter 4 P.No.: 4.1-4.36
	
	 Unit III: Chapter 7 P.No.: 7.4-7.31
	
	 Unit IV: Chapter 8 P.No.: 8.1-8.36
	
	             Chapter 9 P.No.: 9.1-9.39
	
	 Unit V: Chapter 11 P.No.: 11.1-11.44

Reference Books

1	R. Panneerselvam(2015), Operations Research, Second Edition, PHI Learning Private Limited, Delhi.
2	I. Griva, S. G. Nash and A. Sofer (2018), Linear and Nonlinear Optimization, SIAM Publication,.

Web Resources (Swayam / NPTEL)

1.	https://nptel.ac.in/courses/111105039

Part – IV : **A**bility **E**nhancement **C**ompulsory **C**ourses(**AECC**)
(All the Postgraduate Programmes)

Course Code	Course Name	Category	Hours / Week	Credits
25SOF1AE	**Soft Skills**	**AECC - I**	**2**	**2**

Course Objectives
The course intends to cover
- The essential soft skills that is crucial for success in today's dynamic and interconnected workplace.

Course Learning Outcomes
On the successful completion of the course, students will be able to

CLO	CLO Statements	Knowledge Level
CLO1	Understand the comprehensive skills to participate actively in conversation, writing short texts with expression	K1, K2, K3
CLO2	Infer the cohesive devices to describe and discuss any objects, pictures using compound, complex sentence forms.	K2, K3
CLO3	Comprehend the logic in the given situation to organize the ideas to write formal and informal letters.	K2, K3
CLO4	Understand the given material to organize it in a logical sequence to present a paragraph with main and supporting ideas with concluding sentences.	K3
CLO5	Present valuable ideas in conversation to emulate the main ideas and key points in short essays.	K3
K1 - Remember; **K2** - Understand; **K3** - Apply;		

Ability Enhancement Compulsory Course - I : Soft Skills

Module	Unit	Details	No. of Hours
		Presentation Skills	
I	1	**Getting to Know You:** Grammar: Introduction to Tenses, Everyday English, Role-Play. Reading Activity: Different ways of communication. *Activities*: Fill in the blanks (Listening), Self Introduction (Speaking).	6
	2	**My Day:** Grammar: Present simple positive & negative/Adverbs of Frequency, Vocabulary & Speaking about Daily Activities. Listening: Observe and Answer/ Telling the time. *Activities:* Reading & Writing: Describe where you live.	
	3	**Your World:** Grammar: Possessive determiners. Listening: Positive & negative contractions. Reading & Writing: Personal profile. *Activities:* Talk about countries, nationalities (Vocabulary & Speaking).	
	4	**The World of Work:** Grammar: Yes/No & Wh Questions. Vocabulary & Speaking: Jobs. Listening: Recognize the schwa sound. *Activities:* Opening and closing an email (Reading & Writing).	
	5	**Places and Things:** Grammar: There is / there are, articles. Vocabulary & Speaking: Talk about rooms & furniture. Listening: Directions. Reading & Writing: Imperatives.	
	6	**24 Hours:** Grammar: Likes & Dislikes. Vocabulary & Speaking: Speak about hobbies and interests. Reading: Match the photos with descriptions. Writing: Write complete sentence using prompt. *Activities:* Observe & answer *(Listening).*	
		Practice: Listening & Speaking Presentations - Talking about how you learn – Understanding key information in a presentation – Writing sentences about you.	
II		**Confidence**	
	1	**Clothes and Shopping:** Grammar: Modal verbs/Adverbs of Frequency/Adjectives and Adverbs. Vocabulary & Speaking: Shopping. Reading & Writing: Product Review. *Activities:* Observe & answer *(Listening).*	6
	2	**Travel & Transport:** Grammar: Past simple questions. Vocabulary & Speaking: Talk about holidays. Listening: At the train station. *Activities:* Email - A perfect holiday (Reading & Writing).	
	3	**Health & Fitness:** Grammar: Past simple irregular verbs; Listening: Listen & Answer; Reading & Writing: Time sequencers; *Activities:* Talk about a healthy lifestyle (Vocabulary & Speaking)	
	4	**Music:** Grammar: Present perfect simple; Vocabulary & Speaking: Survey about music; Listening: Listen two people talk about music; *Activities:* Use adjectives and create sentences (Reading)	
	5	**Let's go shopping:** Vocabulary & Speaking: Town Survey; Listening: Listen and answer; Reading & Writing: Read and match; Activities: Countable & Uncountable (Grammar)	
		Practice: Writing a personal statement.	

		Creativity	
III	1	**Cooking & Eating:** Grammar: Some & Any, Quantifiers. Vocabulary & Speaking about Food & Drink. *Activities* Kitchen conversation (Listening). Reading an article & answering.	6
	2	**Survival:** Grammar: Comparison of adjectives. *Activities* Describing people (Speaking and Vocabulary). Listening to an audio & Answering. Reading & Writing: Read and Answer.	
	3	**Working Together:** Grammar: Verb + Noun phrases. *Activities* Technology (Vocabulary & Speaking). Listening: Listen & Answer. Reading & Writing: Notice.	
	4	**Music:** Grammar: Present perfect simple. *Activities* Survey about music (Vocabulary & Speaking). Listen to two people talking about music (Listening). Reading: Use adjectives and create sentences.	
	5	**Culture and Arts:** Grammar: Present perfect.Vocabulary & Speaking activity: Speak on the phone. *Activities:* Listen and answer. Reading & Writing activity: Review.	
		Practice: Writing comparison sentences & paragraphs.	
IV		**Problem-Solving**	
	1	**Do's and Don'ts:** Grammar, Modal Verbs. *Activities* Roleplay (Speaking). Holidays in January (Listening). Reading an article & answering.	6
	2	**Body:** Grammar: First conditional. Vocabulary & Speaking about Personality & Appearance. *Activities* Conversations about personality (Listening), Reading & Writing: Read and Answer about your skills.	
	3	**Speed:** Grammar: Present simple passive. Vocabulary & Speaking about relationships. Listening: Listen & Answer. Reading and Error spotting.	
	4	**Work:** Grammar: Adverbs of manner. Vocabulary & Speaking about work advice. Listening: Observe & Answer; Reading: Read & check your ideas.	
		Practice: Writing argumentative and descriptive essays.	
V		**Critical Thinking**	
	1	**Influence:** Grammar: would / past habits. Listening: Sentence Correction. *Activities* Your inspiration (Speaking). Picture description (Reading).Rewrite the sentences (Writing).	6
	2	**Money:** Grammar: Second conditional. *Activities:* Radio programme (Listening). Talk about games (Speaking). Reading & Writing: Fill in the blanks.	
	3	**Things that changed the world:** Grammar: articles. *Activities* :Talk about chewing gum (Speaking & Listening). Reading & Writing: Read and write a book review.	
		Practice: Writing Emails, reports and proposals.	
		Total Hours	**30**

Components for Internal Assessment and Distribution of Marks for CIA and ESE (Theory)

Max Marks	Marks for		Components for CIA						
	CIA	ESE	CIA		Model		Attendance	Active Engagement	Total
100	**25**	**75**	Actual	Weightage	Actual	Weightage	**5**	**5**	**25**
			50	**5**	75	**10**			

Question Paper Pattern

Component	Duration in Hours	Section A			Section B			Section C			Total
		Type of Question	No. of Questions	Marks	Type of Question	No. of Questions	Marks	Type of Question	No. of Questions	Marks	
CIA	2	MCQ	8	8x1=8	Either or	3	3x6=18	Either or	3	3x8=24	50
Model Exam / **ESE**	3	MCQ	10	10x1=10	Either or	5	5x5=25	Either or	5	5x8=40	75

Components for Internal Assessment and Distribution of Marks for CIA (Lab)

Max Marks	Marks for		Components for CIA						
	CIA	ESE	Test		Model		Experiments / Programs	Observation	Total
			Actual	Weightage	Actual	Weightage	Marks		
100	40	60	50	**10**	60	**15**	**10**	**5**	**40**

Examination Pattern

Component	Duration in Hours	Marks			Total Marks
		Practical Exam	Record	Weightage	
Test	2	50	-	**10**	50
Model	3	60	-	**15**	60
Experiments	-	-	-	**10**	10
Observation	-	-	-	**05**	05
		Total Marks - CIA		**40**	**40**
ESE	3	50	10	-	**60**

Components for Internal Assessment and
Distribution of Marks for CIA (Foundation Course -Theory)

Max Marks	Marks for		Components for CIA				
	CIA	ESE	CIA		Model		
50			Actual	Weightage	Actual	Weightage	Total
	50	**-**	50	**25**	50	**25**	**50**

Question Paper Pattern

Duration in Hours	Mode of Exam	Type of Questions	No. of Questions	Marks
2	Offline	Open Choice	5 (Out of 8)	5 x 10=50

Components and Distribution of Marks for ESE (Theory)
Ability Enhancement Compulsory Courses (AECC)
&
Question Paper Pattern

Duration in Hours	Mode of Exam	Type of Questions	No. of Questions	Marks
2	Online	MCQ	50	50x1=50