Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur

(An Autonomous Institute Affiliated to Rajasthan Technical University, Kota)

Teaching and Examination Scheme-2024-25

B.Tech. I Year (Semester I & II)

Sr. No.	SEM.	Course Code	Course Name	Category	Teaching Scheme			Exam Hrs.	Marks			Credit
					L	T	P		CIE	SEE	Total	
1	I	MAUL101	Engineering Mathematics-I	BSC	3	1	0	3	40	60	100	4
2	I	PHUL101/CHUL101	Engineering Physics/Engineering Chemistry	BSC	3	1	0	3	40	60	100	4
3	I	HSUL101/HSUL102	Communication Skills/Universal Human Values	HSMC	2	0	0	3	40	60	100	2
4	I	CSUL101	Computational Thinking and Programming	ESC	2	0	0	3	40	60	100	2
5	I	EEUL101	Basic Electrical & Electronics Engineering (CSE/IT/CSE(DS)/CSE(AI)/CSE(IOT)/ME/CE)	ESC	2	0	0	3	40	60	100	2
		CEUL101	Basic Civil Engineering (EE/ECE/ME)	ESC	2	0	0	3	40	60	100	
		MEUL101	Basic Mechanical Engineering (CSE/IT/CSE(DS)/CSE(AI)/CSE(IOT)/EE/ECE/CE)	ESC	2	0	0	3	40	60	100	
6	I	PHUP120/CHUP120	Engineering Physics Lab/ Engineering Chemistry Lab	BSC	0	0	2	3	60	40	100	1
7	I	HSUP120/HSUP121	Language Lab/ Universal Human Values Lab	HSMC	0	0	2	3	60	40	100	1
8	I	CSUP120	C Programming Lab	ESC	0	0	2	3	60	40	100	1
9	I	EEUP120	Basic Electrical & Electronics Engineering Lab (CSE/IT/CSE(DS)/CSE(AI)/CSE(IOT)/ME/CE)	ESC	0	0	2	3	60	40	100	1
		CEUP120	Basic Civil Engineering Lab (EE/ECE/ME)	ESC	0	0	2	3	60	40	100	
		MEUP120	Manufacturing Practice Workshop (CSE/IT/CSE(DS)/CSE(AI)/CSE(IOT)/EE/ECE/CE)	ESC	0	0	2	3	60	40	100	
10	I	MEUP121/ MEUP122	Computer Aided Engineering Graphics/Computer Aided Machine Drawing	ESC	0	0	3	3	60	40	100	1.5
11	I	XXUA100	Social Outreach, Discipline and Extra-Curricular Activities (SODECA)	SODECA	-	-	0.5	-	-	-	-	0.5
12	I	NU99.X	Audit Course	NC	-	-	-	3	40	60	100	0
									Total Credit			**20**

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B.Tech. I Year (Semester I & II)

Sr. No.	SEM.	Course Code	Course Name	Category	Teaching Scheme			Exam Hrs.	Marks			Credit
					L	T	P		CIE	SEE	Total	
1	II	MAUL201	Engineering Mathematics-II	BSC	3	1	0	3	40	60	100	4
2	II	PHUL201/CHUL201	Engineering Physics/Engineering Chemistry	BSC	3	1	0	3	40	60	100	4
3	II	HSUL201/HSUL202	Communication Skills/Universal Human Values	HSMC	2	0	0	3	40	60	100	2
4	II	HSUL203	Innovation & Entrepreneurship	HSMC	1	0	0	3	40	60	100	1
5	II	CSUL201	Problem Solving using Object Oriented Paradigm	ESC	2	0	0	3	40	60	100	2
6	II	EEUL201	Basic Electrical & Electronics Engineering (CSE/IT/CSE(DS)/CSE(AI)/CSE(IOT)/ME/CE)	ESC	2	0	0	3	40	60	100	2
		CEUL201	Basic Civil Engineering (EE/ECE/ME)	ESC	2	0	0	3	40	60	100	
		MEUL201	Basic Mechanical Engineering (CSE/IT/CSE(DS)/CSE(AI)/CSE(IOT)/EE/ECE/CE)	ESC	2	0	0	3	40	60	100	
7	II	PHUP220/CHUP220	Engineering Physics Lab/ Engineering Chemistry Lab	BSC	0	0	2	3	60	40	100	1
8	II	HSUP220/HSUP221	Language Lab/ Universal Human Values Lab	HSMC	0	0	2	3	60	40	100	1
9	II	CSUP220	Object Oriented Programming Lab	ESC	0	0	2	3	60	40	100	1
10	II	EEUP220	Basic Electrical & Electronics Engineering Lab (CSE/IT/CSE(DS)/CSE(AI)/CSE(IOT)/ME/CE)	ESC	0	0	2	3	60	40	100	1
		CEUP220	Basic Civil Engineering Lab (EE/ECE/ME)	ESC	0	0	2	3	60	40	100	
		MEUP220	Manufacturing Practice Workshop (CSE/IT/CSE(DS)/CSE(AI)/CSE(IOT)/EE/ECE/CE)	ESC	0	0	2	3	60	40	100	
11	II	MEUP221/ MEUP222	Computer Aided Engineering Graphics/Computer Aided Machine Drawing	ESC	0	0	3	3	60	40	100	1.5
12	II	XXUA200	Social Outreach, Discipline and Extra-Curricular Activities (SODECA)	SODECA	-	-	0.5	-	-	-	-	0.5
13	I	NU99.X	Audit Course		-	-	-	3	40	60	100	0
									Total Credit			**21**

Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur

Syllabus

Name of the Programme: B.Tech.	**Year**: I	**Semester**: I
Course Name: Engineering Mathematics- I	**Course Code**: MAUL101	**Credit**: 4
Max Marks: 100	**CIE:** 40	**SEE:** 60
End Term Exam Time: 3 Hrs	**Teaching Scheme:** 3L+1T	

Module No.	Contents	Hours
1	**Introduction:** Objective, Scope, Outcome of the Course and Prerequisite	1
2	**Sequence and series**: Convergence of Sequence and series, test of convergence: comparison test, p-series test, D'Alembert's test, Raabe's test, Cauchy's root test, Cauchy's integral test, Logarithmic test, Leibniz's test for alternating series ,power series, Taylor's series expansion.	7
3	**Fourier series** : Periodic functions, Fourier series, Euler's formula, change of interval, half range sine and cosine series, Parseval's theorem, Harmonic analysis.	7
4	**Calculus**: Improper integrals (Beta and Gamma functions) and their properties; Applications of definite integrals to evaluate surface areas and volumes of revolution of standard curves.	7
5	**Multivariable calculus** : Limit, continuity, partial derivatives, Euler's theorem for homogenous functions; Maxima, minima and saddle point, method of Lagrange multipliers; Multiple integration: Double integrals (Cartesian),change of order of integration, change of variables(Cartesian to polar),Applications: areas and volumes, center of mass and gravity(constant and variable densities);Triple integrals(Cartesian),simple applications involving cubes, spheres and rectangular parallelepipeds.	14
6	**Vector calculus**: Vector differentiation, gradient, curl and divergence, directional derivatives; Scalar line integrals and vector line integrals, scalar surface integrals, vector surface integral, theorems of Green, Gauss and Stoke (application only).	9
	Total	**45**

Text Books:

1. Advanced Engineering Mathematics, I R.K. Jain, and S.R.K. Iyengar. Narosa publication, 2018.
2. Higher Engineering Mathematics, B.V. Ramana, McGraw Hill Education.

Reference Books:

1. Thomas's Calculus, M.D. Wier, and J. Hass.. Pearson publication

2. Calculus with Early Transcendental Functions, James Stewart, Cengage Lerning Publication.

3. Engineering Mathematics, C.B. Gupta, S.R. Singh and Mukesh Kumar, McGraw Hill Education.

4. Engineering Mathematics, S. Pal and S.C. Bhunia, Oxford University Press.

Prerequisite:

1. Basic concepts of vectors
2. Fundamentals of Differential and Integral Calculus
3. Co-ordinate geometry

Syllabus

Name of the Programme: B.Tech.	**Year**: I	**Semester**: II
Course Name: Engineering Mathematics - II	**Course Code**: MAUL201	**Credit**: 4
Max Marks: 100	**CIE:** 40	**SEE:** 60
End Term Exam Time: 3 Hrs	**Teaching Scheme:** 3L+1T	

Module No.	Contents	Hours
1	**Introduction:** Objective, Scope, Outcome of the Course and Prerequisite	1
2	**Matrices:** Rank of a matrix, rank-nullity theorem; System of linear equations; Symmetric, skew-symmetric and orthogonal matrices; Eigen values and eigenvectors; Diagonalization of matrices; Cayley-Hamilton Theorem, and Orthogonal transformation.	11
3	**First order ordinary differential equations:** Geometrical interpretations and physical problems, Linear and Bernoulli's equations, Exact equations, Equations not of first degree: equations solvable for p, equations solvable for y, equations solvable for x and Clairaut's type.	7
4	**Ordinary differential equations of higher orders:** Linear Differential Equations of Higher order with constant coefficients, Second order linear differential equations with variable coefficients: Cauchy Euler equation , Homogenous and Exact forms, one part of CF is known, Change of dependent and independent variables, method of variation of parameters ,Applications of ODE to physical problems.	12
5	**Partial Differential Equations – First order:** Order and Degree, Formation; Linear Partial differential equations of First order, Lagrange's Form, Non Linear Partial Differential equations of first order, Charpit's method, Standard forms.	7
6	**Partial Differential Equations– Higher order:** Classification of Second order partial differential equations, Separation of variables method to simple problems in Cartesian coordinates including two dimensional Laplace, one dimensional Heat and one dimensional Wave equations.	7
	Total	**45**

Text Books:

1. Advanced Engineering Mathematics, I R.K. Jain, and S.R.K. Iyengar.. Narosa publication, 2018.
2. Higher Engineering Mathematics, B.V. Ramana, McGraw Hill Education.
3. Higher Engineering Mathematics, B.S. Grewal, Khanna Publication, 2005.

Reference Books:

1. Thomas's Calculus, M.D. Wier, and J. Hass.. Pearson publication.
2. Advanced Engineering Mathematics, I E. Kreyszig.. Wiley publication, 2011.
3. Calculus with Early Transcendental Functions, James Stewart, Cengage Learning Publication.
4. Engineering Mathematics, C.B. Gupta, S.R. Singh and Mukesh Kumar, McGraw Hill Education.
5. Engineering Mathematics, S. Pal and S.C. Bhunia, Oxford University Press
6. Engineering Mathematics for first year, T.Veerarajan, Tata McGraw Hill.

Prerequisite:

1. Basic concepts of Matrices
2. Fundamentals of Differentiation and Integration