University of Technology Computer Engineering Department Academic Year 2023-2024 3st Year- First semester- All Branches	

CE321	Advanced Mathematics I	2 Hr/Week	2 Units

Contents of syllabus	Hours
1- Laplace transformation • LT properties • LT of derivatives and integrations • Special theories (shifting, convolution, scaling and periodic function) • Inverse LT using Residue theorem • IVP Solving of DE using LT • Electrical circuit analysis by LT	8
2- 2D & 3D Vector Analysis • Vector operations • 2D and 3D vectors • Dot and Cross product • Unit and Normal vector • Lines and planes in space • Gradient, Divergence and Curl • Line integral and Conservative fields • Green's theorem	8
3- Special Functions • Gamma Function • Beta Function	14

• **Applications of Gamma and Beta functions** • **Bessel Function** • **Legendre Function** • **Applications of Bessel and Legendre functions**	

References:

[1] E.Kreyszig "Advanced engineering mathematics"

[2] C.Ray Wylie "Advanced engineering mathematics"

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