SEMESTER S6

FINANCIAL ENGINEERING

Course Code	PCIET602	CIE Marks	40
Teaching Hours/Week (L:T:P:R)	3:0:0:0	ESE Marks	60
Credits	3	Exam Hours	2 Hrs. 30 Min.
Prerequisites (if any)	None	Course Type	Theory

Course Objectives:

1. To enable to understand financial engineering, investment and apply mathematics in financial engineering
2. To enable tools related to capital budgeting, cost of capital, working capital and capital structure.

SYLLABUS

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Module No.	Syllabus Description	Contact Hours
1	**Introduction to finance and financial engineering:** Definitions, financial literacy - needs, financial decisions - goals, financial systems - functions, financial markets - types, financial investment - investment techniques, financial intermediaries, asset types - real estate, securities, commodities, derivatives, and futures.	9
2	**Financial mathematics:** Principal and interest - simple interest and compound interest - continuous compounding. Interest rate - risk free interest rates, term structure of interest rates and short rate models. Time value of money - investment and maturity period, doubling period, present value of annuity and future value of annuity - calculations. Equated monthly instalment (EMI) - EMI calculation. Stocks - valuation of stocks and intrinsic value of stock.	9
3	**Capital budgeting and capital cost:** Capital budgeting process - investment criteria, conventional and discounted cash flow methods - net present value (NPV) and internal rate of return (IRR) - Computation of NPV, IRR, benefit cost ratio, equivalent maintenance cost and payback period.	9

	Cost of capital: Weighted average cost and weighted marginal cost - factors affecting. Company's cost of capital and project cost of capital - cost of debt - cost of preference - cost of equity - capital asset pricing model (CAPM).	
4	**Working capital and capital structure theories:** Working capital - factors affecting capital requirements. Cash management - models of cash management, operating cycle and cash cycle calculations. Capital structure - net income approach, net operating income approach, traditional position, and Modigliani-Miller (MM) hypothesis. Trade off and signalling theory.	**9**

Course Assessment Method
(CIE: 40 marks, ESE: 60 marks)

Continuous Internal Evaluation Marks (CIE):

Attendance	Assignment/ Microproject	Internal Examination-1 (Written)	Internal Examination- 2 (Written)	Total
5	15	10	10	40

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End Semester Examination Marks (ESE)

In Part A, all questions need to be answered and in Part B, each student can choose any one full question out of two questions

Part A	Part B	Total
• 2 Questions from each module. • Total of 8 Questions, each carrying 3 marks **(8x3 = 24 marks)**	• Each question carries 9 marks. • Two questions will be given from each module, out of which 1 question should be answered. • Each question can have a maximum of 3 subdivisions. **(4x9 = 36 marks)**	**60**

Course Outcomes (COs)

At the end of the course students should be able to:

Course Outcomes		Bloom's Knowledge Level (KL)
CO1	Understand finance, financial engineering, and related areas.	**K2**
CO2	Apply financial mathematics including time value of money.	**K3**
CO3	Apply tools and techniques for capital budgeting and cost of capital.	**K3**
CO4	Understand capital structure theories and apply techniques of working capital and cash.	**K3**

Note*: K1- Remember, K2- Understand, K3- Apply, K4- Analyse, K5- Evaluate, K6- Create*

CO-PO Mapping (Mapping of Course Outcomes to Program Outcomes)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	-	-	-	-	1	-	-	1	-	-	2
CO2	2	1	3	-	-	1	-	-	-	-	-	2
CO3	2	1	3	-	-	1	-	-	-	-	3	2
CO4	2	1	3	-	-	1	-	-	-	-	-	2

Note: *1: Slight (Low), 2: Moderate (Medium), 3: Substantial (High), -: No Correlation2*

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Text Books				
Sl. No	**Title of the Book**	**Name of the Author/s**	**Name of the Publisher**	**Edition and Year**
1	Financial Management	Prasanna Chandra	McGraw Hill	10th Edition, 2019
2	Financial Accounting	R Narayanaswamy	PHI Learning	4th Edition, 2017
3	Understanding the Mathematics of Personal Finance	Lawrence N. Dworsky	Wiley Publication	1st Edition, 2009
4	Fundamentals of Financial Management	Eugene F. Brigham, Joel F. Houston	Cengage Publication	15th Edition, 2019

Reference Books				
Sl. No	**Title of the Book**	**Name of the Author/s**	**Name of the Publisher**	**Edition and Year**
1	Applied corporate finance	Aswath Damodaran	Wiley publication	4th Edition, 2015
2	Financial Management	I M Pandey	Vikas publishing house	11th Edition, 2016

Video Links (NPTEL, SWAYAM…)	
Link ID	https://archive.nptel.ac.in/courses/110/107/110107144/

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