Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav School of Management
Choice Based Credit System (CBCS) in Light of NEP-2020

GENERIC ELECTIVE III SEMESTER

GEMPG301 SUPPLY CHAIN ANALYTICS

COURSE CODE	CATEGORY	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			PRACTICAL		L	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	END SEM University Exam	Teachers Assessment*				
GEMPG301	GE	Supply Chain Analytics	60	20	20	-	-	3	-	-	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit; **GE** – Generic Elective
*Teacher Assessment shall be based on following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Objectives
The objective of the course is to help students to develop analytical thinking skills and to build the knowledge of business performance optimization toward operational excellence of supply chains.

Examination Scheme
The internal assessment of the students' performance will be done out of 40 Marks. The semester Examination will be worth 60 Marks. The question paper and semester exam will consist of two sections A and B. Section A will carry 36 Marks and consist of five questions, out of which student will be required to attempt any three questions. Section B will comprise of one or more cases / problems worth 24 marks.

Course Outcomes
- To use data analytics to assess the impact of various strategies on all aspects of a supply chain, from inventory, shipping, store operations and customer satisfaction.
- To customize the supply chain strategy by product to improve the overall cost efficiency without sacrificing customer service.

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Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Chairperson
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Vishwavidyalaya, Indore

Controller of Examination
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

Joint Registrar
Shri Vaishnav Vidyapeeth
Vishwavidyalaya, Indore

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COURSE CONTENT

UNIT I: Introduction:
1. Forecasting for Supply Chain Planning and Management
2. Review of Statistical Foundations: Linear Regression Measuring Demand's Price Elasticity
3. Review of Multiple Regression and Stepwise Selection of Predictive Variables

UNIT II: Forecasting
1. Demand with Multiple Price Elasticity
2. Model Over fitting and Model Cross-Validation
3. Model Shrinkage Methods and Selection of Variants in Linear Regression:
4. Identification of Variables in a Forecasting Model
5. Exponential Smoothing Forecasting Models

UNIT III: Introductions to ARIMA Modeling
1. ARIMA Forecasting Models
2. Seasonal ARIMA Forecasting Models
3. Dynamic Regression Forecasting Models Decomposition of Demand Trend and Seasonality

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UNIT IV: Hierarchical Forecasting Models
1. Top-Down, Bottom-Up, and Middle-Out Approaches to Forecasting
2. Measuring Price and Promotion Effects Forecasting Demand for Consumer Packaged Goods Facebook's Prophet and Google's Robust Forecasting Systems
3. Simulation of Forecasting Models,
4. Managing Inventories in Distribution

UNIT V: Modeling Inventory & Optimization
1. Data Driven Inventory Optimization
2. Integrating Pricing
3. Promotion and Procurement

Suggested Readings:
1. Peter W. Robertson (2020) *Supply Chain Analytics: Using Data to Optimize Supply Chain Processes.* Routledge London
2. Prof Martin Christopher (2011) *Logistics and Supply Chain Management* (Financial Times Series)
3. Emel Aktas (2020) *Supply Chain 4.0: Improving Supply Chains with Analytics and Industry 4.0 Technologies* 1st Edition, kongan page UK publishing
4. Amir H. Gandomi, (2020) *Big Data Analytics in Supply Chain Management: Theory and Applications,* Taylor and Francis Group, UK.

Chairperson	**Chairperson**	**Controller of Examination**	**Joint Registrar**
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Vishwavidyalaya, Indore	Vishwavidyalaya, Indore		