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PENS
Pathway in Enterprise Systems Engineering

Pathway in Enterprise Systems Engineering (PENS)

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http://www.pens.ps

Business Intelligence and Data Analytics

Course Specification

I. Course details

Course Name	Business Intelligence and Data Analytics
Course Code	PENS_BI
Number of Credit Hours	3
ECTS Credits	5.5 (140 learning hours)
Course type (core / elective)	Core
Pre-requisites	Fundamentals of databases Statistics (recommended) Intermediate knowledge in any programming language (an Object Oriented Programming Language is preferred).
Weekly Hours • Theoretical • Practical • Total	 • 3 • 0 • 3
Course Description (provide 60-100 words describing the focus of the syllabus)	
This course gives an overview of business intelligence, analytics, and decision-making. The main topics in this course are introduction to data science and machine learning, predictive analytics, statistical methods, data visualization, apply the theoretical concepts to real life projects.	
Course aim(s) (provide 30-50 words describing the aim of the course)	
This course aims to teach students how to: • Gather, organize and visualize data • Improve decision making in business using current and historical data. • Provide the raw data in the form of informative and easy to read reports. • Conduct a qualitative and quantitative business analysis. • Extract data from databases and analyze it.	

II. Intended Learning Outcomes of Course (ILOs)

On completing the course, students should be able to (provide 4-6 learning outcomes):

LO.1 Recognize the role of business intelligence and data analytics in assisting the organizations in decision making process.

LO.2 Identify the different types of BI methods and their adoption in real life projects.

LO.3 Analyze and clean gathered data from different resources and prepare it.

LO.4 Apply various tools of data analytics and visualization.

LO.5 Evaluate and use appropriate machine learning algorithms and techniques and apply them with leading business intelligence tools to support decision making.

III. Course Matrix Contents

	Week	Main Topics / Chapters	Learning Hours	Intended Learning Outcome (s)
1	1	Introduction to business intelligence and data science	15	LO.# - 1
1	2	Analytics Overview: descriptive, predictive and perspective analytics	15	LO.# - 1
	3	Practical example of Descriptive Statistical modeling for business analytics	12	LO.# - 1 & 2
2	4	Data Visualization	18	LO.# - 3 & 4
	5	Practical example of Descriptive Statistics	15	LO.# - 1
2	6	Business Intelligence and Data Warehousing	15	LO.# - 1 & 3
3	7	Introduction to hypothesis test: Predictive Analytics: mining methods and algorithms	15	LO.# - 3
2.8	8	Fundamentals of Big Data Analytics	15	LO.# - 3 & 4
	9	An overview of data visualization tools: (Tableau application)	20	LO.# - 3 & 4
	Total Learning Hours		140	

IV. Assessment Methods, Schedule and Grade Distribution

Assessment type	Used	Formative	Weight	Week	ILO(s)
Written exam (midterm)	Y	Y/N	[30%]	#[8]	• [1,2]
Written exam (final)	Y	Y/N	[40%]	#[16]	• [2,3,4]
Practical coursework (individual projects)	Y	Y/N	[20%]	#[4, 10]	• [3,4]
Written coursework (group)	N	Y/N	[.....%]	#[.....]	• [.....]
Oral presentation (individual)	N	Y/N	[.....%]	#[.....]	• [.....]
Oral presentation (group)	N	Y/N	[.....%]	#[.....]	• [.....]
Test/Quiz	Y	Y/N	[10%]	#[3, 6, 9, 14]	• [1,2,3,4]
Other	N	Y/N	[.....%]	#[.....]	• [.....]

V. List of References

Essential textbook(s)	• Business Intelligence: A Managerial Approach, Global Edition, 4/E
Recommended textbook (s)	• Decision Support and Business Intelligence Systems: International Edition, 9th, by: Efraim Turban, Ramesh Shadra, and Dursun Delen; Pearson Publishing, 2011.
Course notes	• The material should be sent on slides thought the semester.
Journal(s) / periodical(s)	• Electronic Journals will be used in this course; links to relevant online journals should be provided during the semester.
Specific article(s)	• [.....]

Websites and other online resources	• https://www.ibm.com/analytics/ • https://www.tableau.com/