**JAIPURIA INSTITUTE OF MANAGEMENT**

**PGDM(SM); TRIMESTER I; ACADEMIC YEAR 2020-21**

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| Course Code and title | IT101 – Data Analysis Using Spreadsheet (DAS) |
| Credits | 3 |
| Term and Year | Term I; Year: 2020-21 |
| Course Pre-requisite(s) | None |
| Course Requirement(s) | Basic knowledge of computers |
| Course Schedule (day and time of class) | As per time table released by PGP |
| Classroom # (Location) | Computer Lab /As per allotted by PGP |
| Course Instructor |  |
| Course Instructor Email |  |
| Course Instructor Phone (Office) |  |
| Student Consultation Hours |  |
| Office location |  |

## Course Overview:

The ability to analyze data is a powerful skill that helps you make better decisions. Microsoft Excel is one of the top tools for data analysis. In this course, you will learn how to use various Excel’s functions/formulas. You will see the power of Excel and its ability to summarize data in flexible ways, enabling quick exploration of data.

The learnings of this course will be useful for other courses of core functional areas like, Statistics, Economics, and Marketing etc. The students will use the tools and knowledge provided in this course to analyze the data they will get in upcoming courses.

PO 1: Communicate effectively

PO 2: Demonstrate the ability to work in teams to achieve desired goals

PO 3: Reflect on business situations applying relevant conceptual frameworks in service management context

PO 4: Evaluate different ethical perspectives

PO 5: Discuss the centrality of customer experience in service management

PO 6: Exhibit innovative and creative thinking

## Course Learning Outcome (CLO)

At the end of the course, the students would be able to -

CLO 1: Recognize the basic spreadsheet elements for data preparation. (**Remember- Conceptual**)

CLO 2: Classify the appropriate spreadsheet functions to a situation. (**Understand-Conceptual**)

CLO 3: Use the given data for decision-making. (**Apply-Metacognitive**)

### Mapping of CLOs with PLOs

I: Introduce

R: Reinforce

M: Master

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| --- | --- | --- | --- | --- | --- | --- |
|  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
| CLO 1 |  |  | R\* |  |  |  |
| CLO 2 |  |  | I\* |  |  |  |
| ClO 3 |  |  | I\* |  |  |  |

### \*For course attainment

### ****Mapping of CLOs with GAs****

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| --- | --- | --- | --- | --- | --- | --- | --- |
| GA1 | GA2 | GA3 | GA4 | GA5 | GA6 | GA7 | GA8 |
| Self-initiative | Deep discipline knowledge | Critical thinking & Problem solving | Humility, Team-Building and Leadership Skills | Open and Clear Communication | Global outlook | Ethical competency &sustainable mindset | Entrepreneurial and innovative |
| CLO1 |  |  |  |  |  |  |  |
| CLO2 |  |  |  |  |  |  |  |
| CLO3 |  |  |  |  |  |  |  |

### References

Case/data problems

### Session Plans:

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| S. No. | Topic / Sub topic | Text book / Readings | Pedagogy | SLO | CLO |
|  | **Module I: Understanding and preparing data for analysis**  Nuances of Cell Referencing – AR, RR, MR | Readings / Case Data 1: Data Dumps | Ice Breaking, Discussion, demonstration and experiential activity | Students understand basics of spreadsheet element – rows, columns, cell referencing, data entry/importing data, data formatting - deleting and insertion and freezing of rows/columns, save and protect. | CLO 1 |
|  | Dealing with Name Ranges  Understanding and resolving types of errors | Readings / Case Data 1: Data Dumps | Discussion, demonstration and experiential activity | Students would be able to use name range concept for name of cells and be able to understand errors. | CLO 1 |
|  | Conditionally highlighting cells | Readings / Case Data 1: Data Dumps | Discussion, demonstration and experiential activity | Students would be able to highlight cells depending on the cell's value. | CLO 1 |
|  | Arranging data for a situation:  Sorting  Custom list sorting | Readings / Case Data 1: Data Dumps | Discussion, demonstration and experiential activity | Students would be able to understand sorting techniques | CLO 1 |
|  | Filtering data for a situation | Readings / Case Data 1: Data Dumps | Discussion, demonstration and experiential activity | Students would be able to understand filtering techniques for a given situation. | CLO 1 |
|  | Review and practice | Case Exercise | Experiential activity | Students assimilate learning of previous sessions | CLO 1 |
|  | **Module II: Building Logic**  Understanding basic functions: sum, count, average, max, min | Readings / Case Data 2: Boxing Data | Discussion, demonstration and experiential activity | Students learn to deal with functions and their syntax in excel. | CLO 2 |
|  | Beginning with IF()  IF() + AND()  IF() + OR() | Readings / Case Data 2: Boxing Data | Discussion, demonstration and experiential activity | Students would be able to understand basics of IF() , IF with logical operators (AND OR NOT) | CLO 2 |
|  | Concept and use of nested IF()  IF(IF(IF(…))) | Readings / Case Data 2: Boxing Data | Discussion, demonstration and experiential activity | Students learn to use nested IF() combined with logical operators in different situations | CLO 2 |
|  | COUNTIF() & COUNTIFS() | Readings / Case Data 2: Data Dumps | Discussion, demonstration and experiential activity | Students learn to query data using conditional and aggregate functions | CLO 2 |
|  | SUMIF() & SUMIFS() and AVERAGEIFS() | Readings / Case Data 2: Data Dumps | Discussion, demonstration and experiential activity | Students learn to query data using conditional and aggregate functions | CLO 2 |
|  | Review and Exercises | Exercises | Experiential activity | Students assimilate learning of previous sessions | CLO 2 |
|  | **Module III: Extracting data**  VLOOKUP() and its nuances | Readings / Case Data 3: Looking For | Discussion, demonstration and experiential activity | Students would be able to extract relevant business information based on a criteria and use the same for a given situation. | CLO 2 |
|  | VLOOKUP() and its nuances contd.. | Readings / Case Data 3: Looking For | Discussion, demonstration and experiential activity | Students would be able to extract relevant business information based on a criteria and use the same for a given situation. | CLO 2 |
|  | HLOOKUP() and its nuances | Readings / Case Data 3: Looking For | Discussion, demonstration and experiential activity | Students would be able to extract relevant business information based on a criteria and use the same for a given situation. | CLO 2 |
|  | Review and Exercises | Exercises | Experiential activity | Students assimilate learning of previous sessions | CLO 2 |
|  | **Module IV: Analyzing Data**  Pivot table and its nuances | Readings / Case Data 4: Sum Up | Discussion, demonstration and experiential activity | Students understand the nuances of the Pivot table | CLO 3 |
|  | Pivot table – Summarize (sum, count, countnum, average) | Readings / Case Data 4: Sum Up | Discussion, demonstration and experiential activity | Students learn summarize portion of Pivot table | CLO 3 |
|  | Pivot Table – Summarize (max, min, …) | Readings / Case Data 4: Sum Up | Discussion, demonstration and experiential activity | Students learn summarize portion of Pivot table | CLO 3 |
|  | Pivot table – Sorting and filtering | Readings / Case Data 4: Sum Up | Discussion, demonstration and experiential activity | Students learn to sort and filter data using pivot table | CLO 3 |
|  | Charts and its nuances  (Column, Bar, Pie, Line, Scatter) | Readings / Case Data 5: Draw Me | Discussion, demonstration and experiential activity | Students learn to analyze data by presenting it in a chart | CLO 3 |
|  | Combination charts | Readings / Case Data 5: Draw Me | Discussion, demonstration and experiential activity | Students learn to analyze data by presenting it in a chart | CLO 3 |
|  | Introduction to Macros | Readings / Case Data 4: Repeat Us | Discussion, demonstration and experiential activity | Students learns basics of macros and its utility in analysis | CLO 3 |
|  | Review and Exercises | Exercises | Experiential activity | Students assimilate learning of previous sessions | CLO 3 |

### Time budgeting in course planning:

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| --- | --- | --- |
| **Activity** | **Description** | **Time Budgeted** |
| Classes | 2-3 hours per week for 6 weeks | 30 hours |
| Reading | Prescribed readings and making notes | 15 hours |
| Preparation of set questions, exercises and problems | Including shared and group exercises | 15 hours |
| Preparation of assignment | Reading and writing | 15 hours |
| Study and revision for test and end of Trimester examination | Self-preparations | 15 hours |
| **TOTAL** |  | 90 hours |

### Assessment PLAN

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|  | CLO1: Recognize the basic spreadsheet elements for data preparation. (**Remember- Conceptual**) | CLO 2: Classify the appropriate spreadsheet functions to a situation.  (**Understand-Conceptual**) | CLO 3: Use the given data for decision-making. (**Apply-Metacognitive**) |
| Lab Exercise: Data Preparation | **Embedded** |  |  |
| Lab Exercise: Logic Building (If, SUMIF, COUNTIF, AVERAGEIF) |  | **Embedded** |  |
| Lab Assignment:  Data Extraction  (Vlookup and Hlookup) |  | **Embedded** |  |
| Data Analysis Case/Dataset Study(Pivot charts and tables) |  |  | **Embedded** |
| End-term Lab Examination |  | **Embedded** | **Embedded** |

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| --- | --- | --- | --- | --- |
| S. No. | Assessment Task | Assessment Description | Weightage | CLO Measured |
|  | Lab Exercise: Data Preparation | Lab (class) exercise of 15-20 minutes conducted in groups of two/three students after first module. Exercise will be based on how well students participate individually/in groups in the datasets/cases/lab analysis activities. | 10% | CLO 1 |
|  | Lab Exercise: Logic Building (If, SUMIF, COUNTIF, AVERAGEIF) | Lab (class) exercise of 15-20 minutes conducted in groups of two/three students after second module. Exercise will be based on how well students participate individually/in groups in the datasets/cases/lab analysis activities. | 10% | CLO 2 |
|  | Lab Assignment:  Data Extraction  (Vlookup and Hlookup) | Lab (class) assignment of 15-20 minutes conducted in groups of two/three students after third module. Assignment will be based on how well students participate individually/in groups in the datasets/cases/lab analysis activities. | 20 % | CLO 2 |
|  | Data Analysis Case/Dataset Study(Pivot charts and tables) | Lab (class) based test consisting of case data/study and application based situational questions wherein students will reflect and correlate their learning with problems in question. The test would be conducted in groups of two/three students. | 20% | CLO 3 |
|  | End-term Lab Examination | The examination would be held in computer lab. This will consist of case data/study and application based situational questions wherein students will reflect and correlate their learning with problems in question. | 40% | Ques 1: CLO 2  Ques 2: CLO 2  Ques 3: CLO 3  Ques 4: CLO 3  10 marks each |

### Instructions:

Students will be expected to maintain a daily log of their learning and make an action plan. The continuous evaluation tools would be implemented as per schedule and collected for evaluation.

Students are encouraged to visit videos available on Internet – YouTube, TED talks, and readings available at websites like course era, etc.

### Institute’s Policy Statements

It is the responsibility of every student to be aware of the requirements for this course, and understand the specific details included in this document. It is emphasized that this course requires a significant commitment outside of formal class contact.  The learning tasks in this course include classes, required reading and practices, the preparation of answers to set questions, exercises and problems, and self-study. In addition, students may be required to complete an assignment, test or examination.

### Late Submission

Not applicable as student would have to complete and submit assignment in the class.

### Plagiarism:

Plagiarism is looked at as the presentation of the expressed thought or work of another person as though it is one's own without properly acknowledging that person.

Cases of plagiarism will be dealt with according to Plagiarism Policy of the institute. It is advisable that students should read applicable section of Student Handbook for detailed guidelines. It is also advisable that students must not allow other students to copy their work and must take care to safeguard against this happening. In cases of copying, normally all students involved will be penalized equally; an exception will be if the student can demonstrate the work is their own and they took reasonable care to safeguard against copying.

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**For faculty only….**

### RUBRICS FOR Data PREPARATION Exercise

**CLO 1:** Recognize the basic spreadsheet elements for data preparation. (**Remember- Conceptual**)

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| --- | --- | --- | --- |
| **Criteria** | **Poor**  **<35%** | **Average**  **35% - 70%** | **Good**  **>70%** |
| Data Preparation  CLO1 | Is not able to apply formatting to prepare data for analysis | Is able to apply formatting to prepare data for analysis | Is able to properly apply formatting to prepare data for analysis |

### RUBRICS FOR LOGIC BUILDING Exercise

CLO 2: Classify the appropriate spreadsheet functions to a situation. (**Understand-Conceptual**)

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| --- | --- | --- | --- |
| **Criteria** | **Poor**  **<35%** | **Average**  **35% - 70%** | **Good**  **>70%** |
| Excel Logic Building Functions  CLO2 | Is not able to apply context based formula/function to the given situation | Is able to apply context based formula/function to the given situation | Is able to apply most of context based formula/function to the given situation |

### RUBRICS FOR Data Extraction ASSIGNMENT

**CLO 2:** Classify the appropriate spreadsheet functions to a situation. (**Understand-Conceptual**)

|  |  |  |  |
| --- | --- | --- | --- |
| **Criteria** | **Poor**  **<35%** | **Average**  **35% - 70%** | **Good**  **>70%** |
| Excel Extraction Functions  CLO2 | Is not able to apply context based formula/function to extract relevant information for a given situation | Is able to apply context based formula/function to extract relevant information for a given situation | Is able to apply most of context based formula/function extract relevant information for a given situation |

### RUBRICS FOR Data Analysis Case/Dataset Study

CLO 3: Use the given data for decision-making. (**Apply-Metacognitive**)

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| **Criteria** | **Poor**  **<35%** | **Average**  **35% - 70%** | **Good**  **>70%** |
| Data Analysis  CLO 3 | Is not able to summarize and/or present data for a given situation | Is not able to summarize and/or present data for a given situation | Is not able to summarize and/or present data for a given situation |

### RUBRICS FOR END TERM

CLO 2: Classify the appropriate spreadsheet functions to a situation. (**Understand-Conceptual**)

CLO 3: Use the given data for decision-making. (**Apply-Metacognitive**)

|  |  |  |  |
| --- | --- | --- | --- |
| **Criteria** | **Poor**  **<35%** | **Average**  **35% - 70%** | **Good**  **>70%** |
| Formula and Functions  CLO 2 | Is not able to apply proper syntax and/or appropriate formula/function to the given situation | Is somewhat able to apply proper syntax and/or appropriate formula/function to the given situation | Is majorly able to apply proper syntax and/or appropriate formula/function to the given situation |
| Analysis  CLO 3 | Is not able to summarize and/or present data for a given situation | Is not able to summarize and/or present data for a given situation | Is not able to summarize and/or present data for a given situation |

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| **Learn** | **Prepare** | **Become** |
| Basics of data analysis using Excel as a tool | Students are prepared to work on various Excel functions and formulas to analyze the data | Students gets ready to handle various course of management |

CLO 1 (Is not able to prepare data for analysis by)

* importing and accessing different file types in excel,
* formatting
* cell referencing
* apply conditional formatting of the spreadsheet

CLO 2 (Is not able to apply context based formula/function to the given situation)

* IF() , IF with logical operators (AND OR NOT), nested IF()
* COUNTIF() & COUNTIFS()
* SUMIF() & SUMIFS() and AVERAGEIFS()

CLO 3 (Is not able to summarize and/or present data for a given situation)

* Pivot table and charts
* charts
* Macros

**Examination question verbs**

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **CLO** | **Action Verbs** |  | **CLO** | **Action Verbs** |  | **CLO** | **Action Verbs** |
| **CLO 1** | Arrange  Order  List  Select  Apply  Change  Choose |  | **CLO 2** | Reproduce  Classify  Convert  Express  Indicate  Infer  Locate  Select  Summarize  Compute  Interpret  Show  Prepare  Manipulate  Modify  Prepare  Solve  Use  Write |  | **CLO 3** | Analyse  Breakdown  Calculate  Categorize  Compare  Contrast  Differentiate  Discriminate  Distinguish  Examine  Model  Outline  Separate  Subdivide |

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