



Kot Bhalwal, Jammu



Model Institute of Engineering
& Technology (Autonomous)
Dr. Arun K. Gupta Teaching-Learning Centre

Department of BCA

Details of Lesson Plan

| S.No. | Particulars | Details |
|-------|------------------------|-----------------------------------|
| 1. | Course Name | Business Mathematics & Statistics |
| 2. | Course Code | UGNCC-107 |
| 3. | Academic Year | 2024-2025 |
| 4. | Semester | 1st |
| 5. | Number of Lesson plans | 33 |
| 6. | Faculty Assigned | Dr. Ria Gupta |

Ria Gupta

Faculty Signature

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| Lesson Plan No. 1 | Course Name: Business Mathematics and Statistics Topic: Matrix and its types | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Gain about what is matrix and what are their types. b. Understand matrix with the help of an example. |
| Teaching Aids (if any) | a. Chalk & talk b. Group discussion |
| Teaching Development | <ol style="list-style-type: none"> 1. Introduction (5 minutes) <ul style="list-style-type: none"> - Ask questions What is matrix? - Encourage students to try answering the question. - Introduce the students with the concept and explain what is matrix in a simple way. 2. Development (10 minutes) <ol style="list-style-type: none"> a. Introduction matrix concept <ul style="list-style-type: none"> - Explain why do we need matrix. b. Explain few types of matrix. <ul style="list-style-type: none"> - Explain various examples. - Give real-time examples of matrix. 3. Exercise (30 minutes) – <ul style="list-style-type: none"> - Have discussion to summarize the lecture - Ask questions related to topic - Ask any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none"> 1. Summarize the lesson learning outcomes and get affirmation from students on these. 2. Suggested video links: https://nptel.ac.in/courses/122104018 <p>Covers the following: What is matrix? What are the types of matrix? What are the applications of matrix?</p> <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none"> 1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. <ul style="list-style-type: none"> - Quiz based activity including MCQs <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |



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| Lesson Plan No. 2 | Course Name: Business Mathematics and Statistics Topic: Types of Matrices | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Gain about all types of matrix b. Understand types of matrix with the help of an example. |
| Teaching Aids (if any) | a. Chalk & talk b. Group discussion |
| Teaching Development | <ol style="list-style-type: none">1. Introduction (5 minutes)<ul style="list-style-type: none">- Ask questions About all types of matrix- Encourage students to try answering the question.- Introduce the students with the concept and explain what the various types of a matrix are in a simple way.2. Development (10 minutes)<ol style="list-style-type: none">a. Introduction types of matrix.<ul style="list-style-type: none">- Explain the concept.b. Explain all the types of matrix.<ul style="list-style-type: none">- Explain various examples.- Explain the difference between types of matrix.3. Exercise (30 minutes) –<ul style="list-style-type: none">- Have discussion to summarize the lecture- Ask questions related to topic- Ask any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none">1. Summarize the lesson learning outcomes and get affirmation from students on these.2. Suggested video links: https://nptel.ac.in/courses/122104018 <p>Covers the following: What are the types of matrix with the help of an example?</p> <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none">1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss.<ul style="list-style-type: none">- Quiz based activity including MCQs <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |



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| Lesson Plan No. 3 | Course Name: Business Mathematics and Statistics Topic: Algebra of Matrices | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Gain about algebra of Matrices. b. Understand about addition, difference and scalar multiplication of matrices. |
| Teaching Aids (if any) | a. Chalk & talk |
| Teaching Development | <ol style="list-style-type: none">Introduction (5 minutes)<ul style="list-style-type: none">Ask questions. About addition, difference and scalar multiplication of matrices.Encourage students to try answering the question.Introduce the students with the concept.Development (10 minutes)<ol style="list-style-type: none">Introduction about addition, subtraction and scalar multiplication of matrices.<ul style="list-style-type: none">Explain how we can add and subtract two matrices.Explain how we multiply a scalar with a matrix.Explain general form of addition, difference and scalar multiplication of matrices.<ul style="list-style-type: none">Explain with the help of example.Solve various questions based on it.Exercise (30 minutes) –<ul style="list-style-type: none">Have discussion to summarize the lecture.Ask questions related to topic.Ask any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none">Summarize the lesson learning outcomes and get affirmation from students on these.Suggested video links: https://www.learnbse.in/ncert-solutions-for-class-12th-maths-chapter-3-matrices/ Covers the following: What are the operations of matrices with the help of various problems? Spend 5 minutes to wrap up and consolidate the leanings. |
| Evaluation | <ol style="list-style-type: none">Reflective Questions (What, why, Who?). Allow students to answer and discuss. |



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| | <p>- Quiz based activity including MCQs Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |
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| Lesson Plan No. 4 | Course Name: Business Mathematics and Statistics Topic: Multiplication of two matrices | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Gain about multiplication of two Matrices. b. Understand about multiplication of two matrices. |
| Teaching Aids (if any) | a. Chalk & talk b. Group discussion |
| Teaching Development | <ol style="list-style-type: none">Introduction (5 minutes)<ul style="list-style-type: none">Ask questions. About multiplication of two matrices.Encourage students to try answering the question.Introduce the students with the concept.Development (10 minutes)<ol style="list-style-type: none">Introduction multiplication of two matrices.<ul style="list-style-type: none">Explain how we can multiply two matrices with examples.Explain general form of multiplication of two matrices.<ul style="list-style-type: none">Explain with the help of example.Solve various questions based on it.Exercise (30 minutes) –<ul style="list-style-type: none">Have discussion to summarize the lecture.Ask questions related to topic.Ask any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none">Summarize the lesson learning outcomes and get affirmation from students on these.Suggested video links: https://www.learncbse.in/ncert-solutions-for-class-12th-maths-chapter-3-matrices/ <p>Covers the following: How we multiply two matrices with the help of various problems?</p> <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none">Reflective Questions (What, why, Who?). Allow students to answer and discuss.<ul style="list-style-type: none">Quiz based activity including MCQs. <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |



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| Lesson Plan No. 5 | Course Name: Business Mathematics and Statistics Topic: Transpose of a matrix | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Gain about transpose of a matrix b. Understand about symmetric and skew symmetric matrix. |
| Teaching Aids (if any) | a. Chalk & talk |
| Teaching Development | <ol style="list-style-type: none">Introduction (5 minutes)<ul style="list-style-type: none">Ask questions About transpose of a matrix.Encourage students to try answering the question.Introduce the students with the concept.Development (10 minutes)<ol style="list-style-type: none">Introduction transpose of a matrix.<ul style="list-style-type: none">Explain how we can find transpose of a matrix with examples.Explain properties of transpose.<ul style="list-style-type: none">Explain symmetric and skew symmetric matrix with the help of example.Solve various questions based on it.Exercise (30 minutes) –<ul style="list-style-type: none">Have discussion to summarize the lectureAsk questions related to topicAsk any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none">Summarize the lesson learning outcomes and get affirmation from students on these.Suggested video links: https://www.learnbse.in/ncert-solutions-for-class-12th-maths-chapter-3-matrices/ Covers the following: How we find transpose of a matrix and use it in symmetric and skew symmetric matrix with the help of various problems? Spend 5 minutes to wrap up and consolidate the leanings. |
| Evaluation | <ol style="list-style-type: none">Reflective Questions (What, Why, Who?). Allow students to answer and discuss.<ul style="list-style-type: none">Quiz based activity including MCQsSpend 5 minutes to evaluate student assimilation of the lesson contents |



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| Lesson Plan No. 6 | Course Name: Business Mathematics and Statistics Topic: Determinant of a matrix | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Gain about determinant of a matrix b. Understand about how we can find determinant of a matrix of different orders. |
| Teaching Aids (if any) | a. Chalk & talk |
| Teaching Development | <ol style="list-style-type: none">Introduction (5 minutes)<ul style="list-style-type: none">Ask questions Related to determinant of a matrix.Encourage students to try answering the question.Introduce the students with the concept.Development (10 minutes)<ol style="list-style-type: none">Introduction determinant of a matrix.<ul style="list-style-type: none">Explain how we can find determinant of a matrix with examples.Explain method of solving determinant row and column wise.<ul style="list-style-type: none">Solve various questions based on it.Exercise (30 minutes) –<ul style="list-style-type: none">Have discussion to summarize the lectureAsk questions related to topicAsk any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none">Summarize the lesson learning outcomes and get affirmation from students on these.Suggested video links: https://www.learnbse.in/ncert-solutions-for-class-12th-maths-chapter-3-matrices/ <p>Covers the following: How we can find determinant of a matrix with the help of various problems?</p> <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ul style="list-style-type: none">Reflective Questions (What, Why, Who?). Allow students to answer and discuss.Quiz based activity including MCQs <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |



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| Lesson Plan no. 7 | Course Name: Business Mathematics and Statistics Topic: Minors and cofactors of a matrix | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Gain about minors and cofactors of a matrix b. Understand about how we can find minors and cofactors of a matrix of different orders. |
| Teaching Aids (if any) | a. Chalk & talk |
| Teaching Development | <ol style="list-style-type: none">Introduction (5 minutes)<ul style="list-style-type: none">Ask questions Related to cofactors of a matrix.Encourage students to try answering the question.Introduce the students with the concept.Development (10 minutes)<ol style="list-style-type: none">Introduction cofactors of a matrix.<ul style="list-style-type: none">Explain how we can find cofactors of a matrix with examples.Explain how we can find cofactors of different order from minors of a matrix.<ul style="list-style-type: none">Solve various questions based on it.Exercise (30 minutes) –<ul style="list-style-type: none">Have discussion to summarize the lectureAsk questions related to topicAsk any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none">Summarize the lesson learning outcomes and get affirmation from students on these.Suggested video links: https://www.learnbse.in/ncert-solutions-for-class-12th-maths-chapter-3-matrices/ <p>Covers the following: How we can find cofactors of a matrix with the help of various problems?</p> <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none">Reflective Questions (What, Why, Who?). Allow students to answer and discuss.<ul style="list-style-type: none">Quiz based activity including MCQs <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |



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| Lesson Plan No. 8 | Course Name: Business Mathematics and Statistics Topic: adjoint of a matrix | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Gain about adjoint of a matrix. b. Understand about how we can find adjoint of a matrix. |
| Teaching Aids (if any) | a. Chalk & talk |
| Teaching Development | <ol style="list-style-type: none"> Introduction (5 minutes) <ul style="list-style-type: none"> Ask questions Related to adjoint of a matrix. Encourage students to try answering the question. Introduce the students with the concept. Development (10 minutes) <ol style="list-style-type: none"> Introduction about adjoint of a matrix. <ul style="list-style-type: none"> Explain how we can find adjoint of a matrix from cofactors. Solve various questions based on it. Exercise (30 minutes) – <ul style="list-style-type: none"> Have discussion to summarize the lecture Ask questions related to topic Ask any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none"> Summarize the lesson learning outcomes and get affirmation from students on these. Suggested video links: https://ncert.nic.in/pdf/publication/exemplarproblem/classXII/maths/leap204.pdf <p>Covers the following: How we can find adjoint of a matrix with the help of various problems?</p> <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none"> Reflective Questions (What, Why, Who?). Allow students to answer and discuss. <ul style="list-style-type: none"> Conduct a minute-paper activity Quiz based activity including MCQs <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |



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| Lesson Plan No. 9 | Course Name: Business Mathematics and Statistics Topic: Inverse of a matrix | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Gain about inverse of a matrix. b. Understand about how we can find inverse of a matrix. |
| Teaching Aids (if any) | a. Chalk & talk |
| Teaching Development | <ol style="list-style-type: none">Introduction (5 minutes)<ul style="list-style-type: none">Ask questions Related to inverse of a matrix.Encourage students to try answering the question.Introduce the students with the concept.Development (10 minutes)<ol style="list-style-type: none">Introduction about inverse of a matrix.<ul style="list-style-type: none">Explain how we can find inverse of a matrix through adjointSolve various questions based on it.Exercise (30 minutes) –<ul style="list-style-type: none">Have discussion to summarize the lectureAsk questions related to topicAsk any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none">Summarize the lesson learning outcomes and get affirmation from students on these.Suggested video links: https://ncert.nic.in/pdf/publication/exemplarproblem/classXII/maths/leap204.pdf <p>Covers the following: How we can find inverse of a matrix through adjoint with the help of various problems?</p> <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none">Reflective Questions (What, Why, Who?). Allow students to answer and discuss.<ul style="list-style-type: none">Conduct a minute-paper activityQuiz based activity including MCQs <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |



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| Lesson Plan No. 10 | Course Name: Business Mathematics and Statistics Topic: Application of a matrix | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: <ol style="list-style-type: none"> Gain about application of a matrix. Understand about how we can solution of simple business and economic problems from matrix. |
| Teaching Aids (if any) | <ol style="list-style-type: none"> Chalk & talk Group discussion |
| Teaching Development | <ol style="list-style-type: none"> Introduction (5 minutes) <ul style="list-style-type: none"> Ask questions Related to application of a matrix. Encourage students to try answering the question. Introduce the students with the concept. Development (10 minutes) <ol style="list-style-type: none"> Introduction about application of a matrix. <ul style="list-style-type: none"> Explain about applications of matrices. Solution of simple business and economic problems. How we can solve linear equations from inverse of a matrix. Exercise (30 minutes) – <ul style="list-style-type: none"> Have discussion to summarize the lecture Ask questions related to topic Ask any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none"> Summarize the lesson learning outcomes and get affirmation from students on these. Suggested video links: <ul style="list-style-type: none"> https://www.youtube.com/watch?v=7gJU3dl6WDs https://www.youtube.com/watch?v=qK5ngErADdc <p>Covers the following: How we can solution of linear equation from inverse and solution of solution of simple business and economic problems.</p> <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none"> Reflective Questions (What, Why, Who?). Allow students to answer and discuss. <ul style="list-style-type: none"> Conduct a minute-paper activity Quiz based activity including MCQs <p>Spend 5 minutes to evaluate student assimilation of the lesson contents.</p> |



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| Lesson Plan No. 11 | Course Name: Business Mathematics and Statistics Topic: Interest and Simple Interest | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Understand the concept of interest and simple interest. b. Interpret about how to find simple interest. |
| Teaching Aids (if any) | a. Chalk & talk b. Group discussion c. Calculator |
| Teaching Development | <ol style="list-style-type: none">Introduction (5 minutes)<ul style="list-style-type: none">Ask questions<ul style="list-style-type: none">What is Interest?What is Amount?Encourage students to try answering the question.Introduce the students with the concept.Development (10 minutes)<ul style="list-style-type: none">Introduction about interest.Explain about simple interest.How we solve problems of simple interest.Exercise (30 minutes) –<ul style="list-style-type: none">Have discussion to summarize the lectureAsk questions related to topicAsk any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none">Summarize the lesson learning outcomes and get affirmation from students on these.Suggested video links: https://archive.nptel.ac.in/courses/112/107/112107209/ <p>Covers the following: How we interpret about basics of interest and simple interest?</p> <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none">Reflective Questions (What, Why, Who?). Allow students to answer and discuss.<ul style="list-style-type: none">Conduct a Group discussion activity. <p>Spend 5 minutes to evaluate student assimilation of the lesson contents.</p> |



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| Lesson Plan No. 12 | Course Name: Business Mathematics and Statistics Topic: Compound Interest | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Gather about the concept of compound interest. b. Interpret about how to find compound interest when interest is completed annually but time is in fraction. |
| Teaching Aids (if any) | a. Chalk & talk b. Group discussion c. Calculator |
| Teaching Development | <ol style="list-style-type: none">Introduction (5 minutes)<ul style="list-style-type: none">- Ask questions- What is simple interest?- What is rate of interest?- Encourage students to try answering the question.- Introduce the students with the concept.Development (10 minutes)<ul style="list-style-type: none">- Introduction about compound interest.- Explain about compound interest when interest is completed annually but time is in fraction.- How to solve problems when interest is completed annually but time is in fraction.Exercise (30 minutes) –<ul style="list-style-type: none">- Have discussion to summarize the lecture- Ask questions related to topic- Ask any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none">Summarize the lesson learning outcomes and get affirmation from students on these.Suggested video links: https://archive.nptel.ac.in/courses/109/107/109107115/ <p>Covers the following: How we interpret about compound interest when interest is completed annually but time is in fraction?</p> <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none">Reflective Questions (What, Why, Who?). Allow students to answer and discuss.<ul style="list-style-type: none">- Conduct a test on board. <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |



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| Lesson Plan No. 13 | Course Name: Business Mathematics and Statistics Topic: Compound interest when interest is half yearly and quarterly. | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Gain about the concept of compound interest. b. Interpret about how to find compound interest when interest is half yearly and quarterly. |
| Teaching Aids (if any) | a. Chalk & talk b. Group discussion c. Calculator |
| Teaching Development | <ol style="list-style-type: none"> Introduction (5 minutes) <ul style="list-style-type: none"> - Ask questions - How to calculate compound interest annually? - How to calculate compound interest when time is in fraction. - Encourage students to try answering the question. - Introduce the students with the concept. Development (10 minutes) <ul style="list-style-type: none"> - Introduction about compound interest. - Explain about compound interest when interest is half yearly. - Explain about compound interest when interest is quarterly. - How to solve problems when interest is half yearly and quarterly. Exercise (30 minutes) – <ul style="list-style-type: none"> - Have discussion to summarize the lecture - Ask questions related to topic - Ask any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none"> Summarize the lesson learning outcomes and get affirmation from students on these. Suggested video links: https://archive.nptel.ac.in/courses/109/107/109107115/ <p>Covers the following: How we interpret about compound interest when interest is half yearly and quarterly?</p> <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none"> Reflective Questions (What, Why, Who?). Allow students to answer and discuss. <ul style="list-style-type: none"> - Quiz based activity including MCQs <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |



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| Lesson Plan No. 14 | Course Name: Business Mathematics and Statistics Topic: Nominal rate of interest. | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Gain about the concept of rate interest. b. Interpret about how to find nominal rate of interest. |
| Teaching Aids (if any) | a. Chalk & talk b. Calculator |
| Teaching Development | <ol style="list-style-type: none">1. Introduction (5 minutes)<ul style="list-style-type: none">- Ask questions- Related to nominal rate of interest- Encourage students to try answering the question.- Introduce the students with the concept.2. Development (10 minutes)<ul style="list-style-type: none">- Introduction about rate of interest.- Explain about nominal rate of interest.- How to solve problems of nominal rate of interest?3. Exercise (30 minutes) –<ul style="list-style-type: none">- Have discussion to summarize the lecture- Ask questions related to topic- Ask any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none">1. Summarize the lesson learning outcomes and get affirmation from students on these.2. Suggested video links: http://www.digimat.in/nptel/courses/video/109107115/L02.html <p>Covers the following: How we interpret about nominal rate of interest?</p> <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none">1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss.<ul style="list-style-type: none">- Conduct a minute-paper activity- Quiz based activity including MCQs <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |



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| Lesson Plan No. 15 | Course Name: Business Mathematics and Statistics Topic: Effective rate of interest | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Gain about the concept effective rate of interest. b. Interpret about how to find effective rate of interest. |
| Teaching Aids (if any) | a. Chalk & talk b. Calculator |
| Teaching Development | <ol style="list-style-type: none">Introduction (5 minutes)<ul style="list-style-type: none">- Ask questions- Related to effective rate of interest- Encourage students to try answering the question.- Introduce the students with the concept.Development (10 minutes)<ul style="list-style-type: none">- Introduction about rate of interest.- Explain about effective rate of interest.- How to solve problems of effective rate of interest?Exercise (30 minutes) –<ul style="list-style-type: none">- Have discussion to summarize the lecture- Ask questions related to topic- Ask any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none">Summarize the lesson learning outcomes and get affirmation from students on these.Suggested video links: https://archive.nptel.ac.in/courses/112/107/112107209/ <p>Covers the following: How we interpret about effective rate of interest?</p> <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none">Reflective Questions (What, Why, Who?). Allow students to answer and discuss.<ul style="list-style-type: none">- Conduct a group discussion activity <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |



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| Lesson Plan No. 16 | Course Name: Business Mathematics and Statistics Topic: Continuous rate of interest | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Gain about the concept of continuous rate of interest. b. Interpret about how to find continuous rate of interest. |
| Teaching Aids (if any) | a. Chalk & talk b. Calculator |
| Teaching Development | <ol style="list-style-type: none"> Introduction (5 minutes) <ul style="list-style-type: none"> Ask questions Related to continuous rate of interest Encourage students to try answering the question. Introduce the students with the concept. Development (10 minutes) <ul style="list-style-type: none"> Introduction about continuous rate of interest. Explain about continuous rate of interest. How to solve problems of continuous rate of interest? Exercise (30 minutes) – <ul style="list-style-type: none"> Have discussion to summarize the lecture Ask questions related to topic Ask any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none"> Summarize the lesson learning outcomes and get affirmation from students on these. Suggested video links: https://archive.nptel.ac.in/courses/109/107/109107115/ <p>Covers the following: How we interpret about continuous rate of interest?</p> <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none"> Reflective Questions (What, Why, Who?). Allow students to answer and discuss. <ul style="list-style-type: none"> Conduct a white board activity. <p>Spend 5 minutes to evaluate student assimilation of the lesson contents.</p> |



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| Lesson Plan No. 17 | Course Name: Business Mathematics and Statistics Topic: Compounding and Discounting of sum using nominal rate of interest | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Articulate the concept of Compounding and Discounting of sum using nominal rate of interest. b. Interpret about how to find Compounding and Discounting. |
| Teaching Aids (if any) | a. Chalk & talk b. Calculator |
| Teaching Development | <ol style="list-style-type: none">Introduction (5 minutes)<ul style="list-style-type: none">- Ask questions- What is present value?- What is future value?- Encourage students to try answering the question.- Introduce the students with the concept.Development (10 minutes)<ul style="list-style-type: none">- Introduction about Future value and Present value- Introduction about Compounding and Discounting.- Explain about Compounding and Discounting.- How to solve problems of Compounding and Discounting?Exercise (30 minutes) –<ul style="list-style-type: none">- Have discussion to summarize the lecture- Ask questions related to topic- Ask any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none">Summarize the lesson learning outcomes and get affirmation from students on these.Suggested video links: https://archive.nptel.ac.in/courses/112/107/112107260/ <p>Covers the following: How we interpret about continuous rate of interest?</p> <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none">Reflective Questions (What, Why, Who?). Allow students to answer and discuss.<ul style="list-style-type: none">- Quiz based activity including MCQs <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |



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| Lesson Plan No. 18 | Course Name: Business Mathematics and Statistics Topic: Compounding and discounting of sum using effective rate of interest | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Articulate about the concept compounding and discounting of sum using effective rate of interest. b. Interpret about how to find compounding and discounting of sum using effective rate of interest. |
| Teaching Aids (if any) | a. Chalk & talk b. Calculator |
| Teaching Development | <ol style="list-style-type: none">Introduction (5 minutes)<ul style="list-style-type: none">- Ask questions- What is effective rate?- What is compound?- What is discount?- Encourage students to try answering the question.- Introduce the students with the concept.Development (10 minutes)<ul style="list-style-type: none">- Introduction about Compounding and discounting of sum using effective rate of interest.- Explain about Compounding and discounting using effective rate of interest.- How to solve problems of Compounding and discounting using effective rate of interest?Exercise (30 minutes) –<ul style="list-style-type: none">- Have discussion to summarize the lecture- Ask questions related to topic- Ask any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none">Summarize the lesson learning outcomes and get affirmation from students on these.Suggested video links: https://archive.nptel.ac.in/courses/112/107/112107260/ <p>Covers the following: How we interpret about Compounding and discounting using effective rate of interest?</p> <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |



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| Evaluation | <p>1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss.</p> <p>Spend 5 minutes to evaluate student assimilation of the lesson contents.</p> |
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| Lesson Plan No. 19 | Course Name: Business Mathematics and Statistics Topic: Compounding and discounting of sum using continuous rate of interest | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: <ol style="list-style-type: none"> Articulate about the concept compounding and discounting of sum using continuous rate of interest. Interpret about how to find compounding and discounting of sum using continuous rate of interest. |
| Teaching Aids (if any) | <ol style="list-style-type: none"> Chalk & talk Calculator |
| Teaching Development | <ol style="list-style-type: none"> Introduction (5 minutes) <ul style="list-style-type: none"> Ask questions Related to Compounding and discounting of sum using continuous rate of interest. Encourage students to try answering the question. Introduce the students with the concept. Development (10 minutes) <ul style="list-style-type: none"> Introduction about Compounding and discounting of sum using continuous rate of interest. Explain about Compounding and discounting using continuous rate of interest. How to solve problems of Compounding and discounting using continuous rate of interest? Exercise (30 minutes) – <ul style="list-style-type: none"> Have discussion to summarize the lecture Ask questions related to topic Ask any student to recapitulate the topic done |
| Closure | <ol style="list-style-type: none"> Summarize the lesson learning outcomes and get affirmation from students on these. Suggested video links: https://archive.nptel.ac.in/courses/112/107/112107260/ <p>Covers the following: How we interpret about Compounding and discounting using Continuous rate of interest?</p> <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |



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| Evaluation | <p>1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss.</p> <p>Spend 5 minutes to evaluate student assimilation of the lesson contents.</p> |
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| Lesson Plan No. 20 | Course Name: Business Mathematics and Statistics Topic: Measure of central tendency | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Articulate about the concept of measures of central tendency. b. Introduce the concept of arithmetic mean, geometric mean and harmonic mean. c. Interpret about how to calculate different types of mean. |
| Teaching Aids (if any) | a. Chalk & talk b. Calculator |
| Teaching Development | <ol style="list-style-type: none">Introduction (5 minutes)<ul style="list-style-type: none">Ask questionsWhat is mean? And how to calculate simple mean?Encourage students to try answering the question.Introduction of new terms and difference between three types of mean.Development (10 minutes)<ol style="list-style-type: none">Introduction about measures of central tendency including different types of mean.Discuss their properties and applications.Explain about finding geometric mean, arithmetic mean and harmonic mean.How to solve problems related to concept of mean.Exercise (30 minutes) –<ul style="list-style-type: none">Have discussion to summarize the lectureAsk questions related to topicAsk any student to recapitulate the topic doneSolve problems related to topic of mean. |
| Closure | <ol style="list-style-type: none">Summarize the lesson learning outcomes and get affirmation from students on these.Suggested reading content: http://www.uop.edu.pk/ocontents/chapter%203.pdf <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none">Reflective Questions (What, Why, Who?). Allow students to answer and discuss.<ul style="list-style-type: none">Conduct a minute-paper activityQuiz based activity including MCQs <p>Spend 5 minutes to evaluate student assimilation of the lesson contents.</p> |



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| Lesson Plan No. 21 | Course Name: Business Mathematics and Statistics Topic: Median and mode | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Articulate about the concept of measures of central tendency. b. Introduce the concept of mode and median. c. Interpret about how to calculate mode and median of data. |
| Teaching Aids (if any) | a. Chalk & talk b. Calculator |
| Teaching Development | <ol style="list-style-type: none">Introduction (5 minutes)<ul style="list-style-type: none">Ask questionsEncourage students to try answering the question.Introduction of new measures of central tendency i.e. Mode and Median.Development (10 minutes)<ol style="list-style-type: none">Introduce the concept of mode and median with their properties and applications.Explain about finding mode and median.How to solve problems related to mode and median for grouped as well as ungrouped data.Exercise (30 minutes) –<ul style="list-style-type: none">Have discussion to summarize the lectureAsk questions related to topicAsk any student to recapitulate the topic doneSolve questions related to topic of mode and median. |
| Closure | <ol style="list-style-type: none">Summarize the lesson learning outcomes and get affirmation from students on these.Suggested video content: http://www.uop.edu.pk/ocontents/chapter%203.pdfGive Problems related to topic to do at home. <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none">Reflective Questions (What, Why, Who?). Allow students to answer and discuss.<ul style="list-style-type: none">Conduct a minute-paper activityQuiz based activity including MCQs <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |



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| Lesson Plan No. 22 | Course Name: Business Mathematics and Statistics Topic: Quartiles, Deciles and percentiles | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Articulate about the concept of partition values- quartiles, deciles and percentiles. b. Interpret about how to calculate partition values of data. |
| Teaching Aids (if any) | a. Chalk & talk b. Calculator |
| Teaching Development | 1. Introduction (5 minutes) - Ask questions - Encourage students to try answering the question. - Introduction of new concept of partition values and three different types of partition values. 2. Development (10 minutes) a. Introduce the concept of quartiles, deciles and percentiles and their applications b. Explain about finding partition values. c. How to solve problems related to partition values and its applications. 3. Exercise (30 minutes) – - Have discussion to summarize the lecture - Ask questions related to topic - Ask any student to recapitulate the topic done - Solve questions related to topic of partition values. |
| Closure | 1. Summarize the lesson learning outcomes and get affirmation from students on these. 2. Suggested reading content: https://www.selfstudys.com/sitepdfs/6AT1sJPneNNR4smd3LQQ 3. Give Problems related to topic to do at home. Spend 5 minutes to wrap up and consolidate the leanings. |
| Evaluation | 1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. - Conduct a minute-paper activity - Quiz based activity including MCQs Spend 5 minutes to evaluate student assimilation of the lesson contents |



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| Lesson Plan No. 23 | Course Name: Business Mathematics and Statistics Topic: Range and Quartile Deviation | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Articulate about the concept of Measures of Variation: absolute and relative. b. Interpret about how to calculate Measures of Variation: Range and Quartile Deviation. |
| Teaching Aids (if any) | a. Chalk & talk b. Calculator |
| Teaching Development | 1. Introduction (5 minutes) - Ask questions. - What is absolute and relative variation? - What is Range? - What are quartiles? - Encourage students to try answering the question. - Introduction of new concept of Measures of Variation: absolute and relative and four different types of Measures of Variation. Development (10 minutes) a. Introduce the concept of Range and Quartile Deviation and their applications. b. Explain about finding Range and Quartile Deviation. c. How to solve problems related to Range and Quartile Deviation. 2. Exercise (30 minutes) - Do various problems on Range and Quartile Deviation. |
| Closure | 1. Summarize the lesson learning outcomes and get affirmation from students on these. 2. Suggested video link: http://www.nitttrc.edu.in/nptel/courses/video/110105060/L03.html 3. Homework: Give Problems related to Range and Quartile Deviation to solve. Spend 5 minutes to wrap up and consolidate the leanings. |
| Evaluation | 1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. |



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| | <ul style="list-style-type: none">- Conduct a minute-paper activity- Quiz based activity including MCQs <p>Spend 5 minutes to evaluate student assimilation of the lesson contents.</p> |
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| Lesson Plan No. 24 | Course Name: Business Mathematics and Statistics Topic: Mean Deviation | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Articulate about the concept of Measures of Variation: Mean Deviation. b. Interpret about how to calculate Mean Deviation about mean, median and mode. |
| Teaching Aids (if any) | a. Chalk & talk b. Calculator |
| Teaching Development | 1. Introduction (5 minutes) - Ask questions. - Encourage students to try answering the question. - Introduction of new concept of Measures of Variation: Mean Deviation about mean, median and mode. Development (10 minutes) a. Introduce the concept of Mean Deviation about mean, median and mode and their applications. b. Explain about finding Mean Deviation about mean, median and mode. c. How to solve problems related to Mean Deviation about mean, median and mode. 2. Exercise (30 minutes) - Do various problems on Mean Deviation about mean, median and mode. |
| Closure | 1. Summarize the lesson learning outcomes and get affirmation from students on these. 2. Suggested Video: http://www.nitttrc.edu.in/nptel/courses/video/110105060/L03.html 3. Homework: Give Problems related to Mean Deviation about mean, median and mode to solve. Spend 5 minutes to wrap up and consolidate the leanings. |
| Evaluation | 1. Reflective Questions (What, Why, Who?). Allow students to answer and discuss. - Conduct a minute-paper activity |



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| | <p>- Quiz based activity including MCQs</p> <p>Spend 5 minutes to evaluate student assimilation of the lesson contents.</p> |
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| Lesson Plan No. 25 | Course Name: Business Mathematics and Statistics Topic: Standard Deviation and Variance | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: <ol style="list-style-type: none"> Articulate about the concept of Measures of Variation: Standard Deviation and variance. Interpret about how to calculate Standard Deviation and variance. |
| Teaching Aids (if any) | <ol style="list-style-type: none"> Chalk & talk Calculator |
| Teaching Development | <p>1. Introduction (5 minutes)</p> <ul style="list-style-type: none"> - Ask questions. - What is mean? - What is assumed mean? - Encourage students to try answering the question. - Introduction of new concept of Measures of Variation: Standard Deviation and variance. <p>Development (10 minutes)</p> <ol style="list-style-type: none"> Introduce the concept of Standard Deviation and variance and their applications. Explain about finding Standard Deviation and variance. How to solve problems related to Standard Deviation and variance. <p>2. Exercise (30 minutes)</p> <ul style="list-style-type: none"> - Do various problems on Standard Deviation and variance. |
| Closure | <ol style="list-style-type: none"> Summarize the lesson learning outcomes and get affirmation from students on these. Suggested Video: http://www.nitttrc.edu.in/nptel/courses/video/110105060/L03.html Homework: Give Problems related to Standard Deviation and variance to solve. Spend 5 minutes to wrap up and consolidate the leanings. |
| Evaluation | <ol style="list-style-type: none"> Reflective Questions (What, Why, Who?). Allow students to answer and discuss. <ul style="list-style-type: none"> - Conduct a minute-paper activity - Quiz based activity including MCQs <p>Spend 5 minutes to evaluate student assimilation of the lesson contents.</p> |



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| Lesson Plan No. 26 | Course Name: Business Mathematics and Statistics Topic: Correlation Analysis | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Articulate the concept of Correlation, its various types and properties. b. Solve the different problems of Correlation. |
| Teaching Aids (if any) | a. Chalk & talk b. Calculator |
| Teaching Development | <ol style="list-style-type: none">1. Introduction (5 minutes)<ul style="list-style-type: none">- Ask questions.- What is the most commonly used techniques for investigating the relationship between two quantitative variables?- Introduce the concept of Correlation.- Talk about its applications in day-to-day life.2. Development (15 minutes)<ol style="list-style-type: none">a. Introduce the concept of Correlation and its types https://www.youtube.com/watch?v=Ot-ztTT-9Jkb. Introduce the concept of Properties of Correlation https://www.youtube.com/watch?v=MXTsSXla4i0c. Explain Karl Pearson's Method of correlation3. Exercise (20 minutes):<ul style="list-style-type: none">-Do various problems on Correlation using Karl Pearson's Method. |
| Closure | <ol style="list-style-type: none">1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.2. Suggested Reading: http://home.iitk.ac.in/~shalab/course5.htm3. Homework:<ul style="list-style-type: none">- Give some questions on Karl Pearson's Method of correlation to solve. <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none">1. Reflective Questions (What, why, Who?). Allow students to answer and discuss.<ul style="list-style-type: none">- Quiz based activity including MCQs <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |



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| Lesson Plan No. 27 | Course Name: Business Mathematics and Statistics Topic: Correlation Analysis (Spearman's Method) | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Articulate the concept of Regression and its types, its properties. b. Solve the different problems of Regression. |
| Teaching Aids (if any) | a. Chalk & talk b. Calculator |
| Teaching Development | <ol style="list-style-type: none">1. Introduction (5 minutes)<ul style="list-style-type: none">- Ask questions.- What is the most commonly used techniques for investigating the relationship between two quantitative variables?- Introduce the concept of Rank Correlation.- Talk about its applications in day-to-day life.- Highlight its important characteristics.2. Development (15 minutes)<ol style="list-style-type: none">a. Explain Spearman's Rank Correlation Method.b. Correlation Coefficient when ranks are given and when ranks are not given.c. Correlation coefficient when ranks are repeated.d. Introduce the Properties of Correlation coefficient.3. Exercise (20 minutes)<ul style="list-style-type: none">-Do various problems on Correlation using Spearman's Rank Correlation Method. |
| Closure | <ol style="list-style-type: none">1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.2. Suggested Reading http://home.iitk.ac.in/~shalab/course5.htm3. Homework:<ul style="list-style-type: none">- Given some questions on Spearman's Rank Correlation Method. to solve. <p>Spend 5 minutes to wrap up and consolidate the learning.</p> |
| Evaluation | <ol style="list-style-type: none">1. Reflective Questions (What, why, Who?). Allow students to answer and discuss. <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |



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| Lesson Plan No. 28 | Course Name: Business Mathematics and Statistics Topic: Regression Analysis | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Articulate the concept of Spearman's rank Correlation method. b. Solve the different problems of Correlation. |
| Teaching Aids (if any) | a. Chalk & talk b. Calculator |
| Teaching Development | <ol style="list-style-type: none">1. Introduction (5 minutes)<ul style="list-style-type: none">- Ask questions.- What is the most commonly used techniques for investigating the relationship between two quantitative variables?- Introduce the concept of Regression.- Talk about its applications in day-to-day life.- Highlight its important characteristics.2. Development (15 minutes)<ol style="list-style-type: none">a. Introduce the concept of Regression and its types.b. Explain Properties of Regression.c. Explain relationship between Correlation and Regression coefficients.3. Exercise (20 minutes)<ul style="list-style-type: none">-Do various problems on Regression and relationship between Correlation and Regression. |
| Closure | <ol style="list-style-type: none">1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.2. Suggested Reading http://home.iitk.ac.in/~shalab/course5.htm3. Homework:<ul style="list-style-type: none">- Give some questions on Correlation and Regression Analysis to solve. <p>Spend 5 minutes to wrap up and consolidate the learning.</p> |
| Evaluation | <ol style="list-style-type: none">1. Reflective Questions (What, why, Who?). Allow students to answer and discuss.<ul style="list-style-type: none">- Quiz based activity including MCQs <p>Spend 5 minutes to evaluate student assimilation of the lesson contents.</p> |



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| Lesson Plan No. 29 | Course Name: Business Mathematics and Statistics Topic: Index numbers & its construction | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Articulate about the concept of index numbers, its meaning and uses. b. Interpret about how to construct index numbers and its types: c. Simple and weighted. |
| Teaching Aids (if any) | a. Chalk & talk b. Calculator |
| Teaching Development | <ol style="list-style-type: none">1. Introduction (5 minutes)<ul style="list-style-type: none">- Ask questions.- What is index number?- Introduction of the new concept of index numbers and its construction.- Discuss the types of construction of index numbers: Simple and Weighted.- Talk about its applications in day-to-day life.- Highlight its important characteristics.2. Development (15 minutes)<ol style="list-style-type: none">a. Introduce the concept of index numbers, its formal definition and uses.b. Explain about how to construct index numbers with their different types.3. Exercise (20 minutes)<ul style="list-style-type: none">- Have discussion to summarize the lecture- Ask questions related to topic- Ask any student to recapitulate the topic done- Solve questions related to topic of index numbers and construction. |
| Closure | <ol style="list-style-type: none">1. Summarize the Lesson Learning Outcomes and get affirmation from students on these.2. Suggested Reading: https://www.geeksforgeeks.org/index-number-meaning-characteristics-uses-and-limitations/3. Homework:<ul style="list-style-type: none">- Give Problems related to a topic to do at home. <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none">1. Reflective Questions (What, why, Who?). Allow students to answer and discuss. |



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| | <p>- Quiz based activity including MCQs</p> <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |
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| Lesson Plan No. 30 | Course Name: Business Mathematics and Statistics Topic: Tests of adequacy of index numbers | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Articulate the concept of Regression and its types, its properties. b. Solve the different problems of Regression. |
| Teaching Aids (if any) | a. Chalk & talk b. Calculator |
| Teaching Development | <ol style="list-style-type: none">Introduction (5 minutes)<ul style="list-style-type: none">Ask questionsWhat are the characteristics of Index number?Encourage students to try answering the question.Introduction of the new concept of tests of adequacy of index numbersDevelopment (15minutes)<ol style="list-style-type: none">Introduce the concept of tests of adequacy, its formal definition and uses.Explain about how to solve the problems of test of adequacy of index numbers.Exercise (20 minutes) :<ul style="list-style-type: none">Have discussion to summarize the lectureAsk questions related to topicAsk any student to recapitulate the topic doneSolve questions related to topic of index numbers. |
| Closure | <ol style="list-style-type: none">Summarize the lesson learning outcomes and get affirmation from students on these.Homework:<ul style="list-style-type: none">Give Problems related to a topic to do at home. <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none">Reflective Questions (What, why, Who?). Allow students to answer and discuss. <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |



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| Lesson Plan No. 31 | Course Name: Business Mathematics and Statistics Topic: Consumer Price indices | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Articulate about the concept of Consumer Price indices b. Solve various problems related to concept of consumer price index numbers. |
| Teaching Aids (if any) | a. Chalk & talk b. Calculator |
| Teaching Development | <ol style="list-style-type: none">Introduction (5 minutes)<ul style="list-style-type: none">- Ask questions- What is price indices?- Introduction of the new concept of Consumer price index numbers and its construction.- Discuss and solve various problems on consumer price indices.Development (15 minutes):<ol style="list-style-type: none">Introduce the concept of consumer price index numbers, its formal definition and uses.Explain about how to construct consumer price index numbers and solve various problems on it.Exercise (20 minutes) :<ul style="list-style-type: none">- Have discussion to summarize the lecture- Ask questions related to topic- Ask any student to recapitulate the topic done- Solve questions related to topic of consumer price index numbers and its construction. |
| Closure | <ol style="list-style-type: none">Summarize the lesson learning outcomes and get affirmation from students on these.Suggested reading: Statistical Methods by Gupta S.P. Published by Sultan Chand and Sons 45th (2017) Pg. 532.Homework:<ul style="list-style-type: none">- Give Problems related to a topic to do at home. <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none">Reflective Questions (What, why, Who?). Allow students to answer and discuss. <p>Spend 5 minutes to evaluate student assimilation of the lesson contents.</p> |



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| Lesson Plan No. 32 | Course Name: Business Mathematics and Statistics Topic: Time Series Analysis | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Articulate about the concept of Components of time series b. Solve the problems based on components of time series. |
| Teaching Aids (if any) | a. Chalk & talk b. Calculator |
| Teaching Development | <ol style="list-style-type: none">Introduction (5 minutes)<ul style="list-style-type: none">Ask questionsWhat is time series?Introduction of the new concept of components of time.Discuss the different types of components of time series.Development (15 minutes)<ol style="list-style-type: none">Introduce the concept of components of time series.Solve various problems based on the topic.Exercise (10 minutes):<ul style="list-style-type: none">Have discussion to summarize the lectureAsk questions related to topicAsk any student to recapitulate the topic done <p>Solve questions related to topic of components of time series.</p> |
| Closure | <ol style="list-style-type: none">Summarize the lesson learning outcomes and get affirmation from students on these.Suggested reading content:<ul style="list-style-type: none">Components of Time Series Data – Geeks for GeeksHomework:<ul style="list-style-type: none">Give some questions related to time series. <p>Spend 5 minutes to wrap up and consolidate the leanings.</p> |
| Evaluation | <ol style="list-style-type: none">Reflective Questions (What, why, Who?). Allow students to answer and discuss. <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |



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| Lesson Plan No. 33 | Course Name: Business Mathematics and Statistics Topic: Trend Analysis in Time Series | Course No.: UGNCC-107 |
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| Objectives | At the end of the lesson the student shall be able to: a. Articulate about the concept of trend analysis and finding trend by moving average method. b. Study the concept of Fitting of linear trend line using principle of least squares c. Solve various problems based on trend analysis concept. |
| Teaching Aids (if any) | a. Chalk & talk b. Calculator |
| Teaching Development | <ol style="list-style-type: none">Introduction (5 minutes)<ul style="list-style-type: none">- Ask questions- What is the importance of time series?- Introduction of the new concept of trend analysis and finding trend line by two different methods.- Discuss and solve various problems based on methods of finding trend.Development (15 minutes)<ol style="list-style-type: none">Introduce the concept of trend analysis, its formal definition and uses.Explain about how to find trend by average method and by the use of principle of least squares.Exercise (20 minutes) :<ul style="list-style-type: none">- Have discussion to summarize the lecture- Ask questions related to topic- Ask any student to recapitulate the topic done- Solve questions related to topic of trend analysis and its construction. |
| Closure | <ol style="list-style-type: none">Summarize the Lesson Learning Outcomes and get affirmation from students on these.Suggested Reading https://bncollegebgp.ac.in/wp-content/uploads/2020/06/ppt-on-LSM.pdfHomework:<ul style="list-style-type: none">- Give some questions on Spearman's Rank Correlation Method. to solve. <p>Spend 5 minutes to wrap up and consolidate the learning.</p> |
| Evaluation | 1. Reflective Questions (What, why, Who?). Allow students to |



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Model Institute of Engineering & Technology (Autonomous) Lesson Plan

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| | <p>answer and discuss.</p> <p>Spend 5 minutes to evaluate student assimilation of the lesson contents</p> |
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