

**Singhania University**

( UGC- recognized university per section 2(f) of the UGC Act 1956)

**COURSE OUTLINE**

<b>COURSE TITLE</b>	Mathematics - I
Course Code	MA-101
Credits	4 ( L: 3 ,T:1, P:0)
Faculty Name	Miss Meenu Nain
Program	Bachelor of Mechanical Engineering
Academic Year and Semester	w.e.f. 2024-25, 1 <sup>st</sup> Semester

**1. Course Description**

Mathematics-I is an essential program in Mechanical Engineering. The objective of this subject is to enable the students to prepare solution for the mathematics problems with the connection in real life.

**2. Student Learning Outcomes :**

**At the end of this course, students should be able to:**

- 1 To acquaint the students with the knowledge of series & sequence, single & multiple variable calculus, knowledge of vector calculus and their applications.

**3. Required Textbook and Reference Material:**

- Material will be provided by faculty.

**4. Session Plan :**

Session plan will be provided by faculty members according to the syllabus.

**5. Evaluation:**

<b>COMPONENT</b>	<b>WEIGHTAGE</b>	<b>DETAILS</b>
Assignment	10%	Sheet Work( A-4 Size sheet in a well mannered way )
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.

Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid- Sem Exam	20%	Mid term exam must be cleared by students for appearing in final examination.
End- Sem Exam	50%	The end term exam must be cleared for appearing in next semester with a minimum passing criteria .

## 6. Academic Integrity:

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<b>COURSE TITLE</b>	Physics-1
Course Code	AP101
Credits	4 ( L: 3 ,T:0, P:1)
Faculty Name	Mr. Kapil Sharma
Program	Bachelor of Mechanical Engineering
Academic Year and Semester	w.e.f. 2024-25, 1 <sup>st</sup> Semester

### 1. Course Description

Physics is an essential program in Mechanical Engineering. The objective of this subject is to enable the students to prepare solution for the physics problems with the connection in real life.

### 2. Student Learning Outcomes :

**At the end of this course, students should be able to:**

To impart knowledge of basic concepts in applied physics and make the students familiar with topics like interference, diffraction, polarization, fiber optics, lasers, wave mechanics, etc. This course is also aimed at enhancing the analytical capability of engineering students.

**3. Required Textbook and Reference Material:**

- Material will be provided by faculty.

**4. Session Plan :**

Session plan will be provided by faculty members according to the syllabus.

**5. Evaluation:**

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work( A-4 Size sheet in a well mannered way )
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<b>COURSE TITLE</b>	Chemistry
Course Code	AC101
Credits	4 ( L: 3 ,T:0, P:1)
Faculty Name	Dr. Sarita
Program	Bachelor of Mechanical Engineering
Academic Year and Semester	w.e.f. 2024-25, 1 <sup>st</sup> Semester

### 1. Course Description

Chemistry is an essential program in Mechanical Engineering. The objective of this subject is to enable the students to prepare the advance chemistry in a best way.

### 2. Student Learning Outcomes :

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

To familiarize the students with the concepts of Engineering Chemistry, Material characterization and green Chemistry.

### 3. Required Textbook and Reference Material:

- Material will be provided by faculty.

### 4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

### 5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work( A-4 Size sheet in a well mannered way )
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
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<b>COURSE TITLE</b>	Engineering Graphics
Course Code	ME105
Credits	2 ( L: 0 ,T:0, P:3)
Faculty Name	Dr. Ravi Datt Yadav
Program	Bachelor of Mechanical Engineering
Academic Year and Semester	w.e.f. 2024-25, 1 <sup>st</sup> Semester

### 1. Course Description

Engineering Graphics is a minor program in Mechanical Engineering. The objective of this is to enable the students to solve the basics in engineering drawing with the connection of daily life.

### 2. Student Learning Outcomes :

**At the end of this course, students should be able to:**

To familiarize the students with drafting and engineering drawing practices.

### 3. Required Textbook and Reference Material:

- Material will be provided by faculty.

### 4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

## 5. Evaluation:

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Assignment	10%	Sheet Work( A-4 Size sheet in a well mannered way )
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
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COURSE TITLE	Basics of Mechanical Engineering
Course Code	ME101
Credits	3 (L:3 ,T:0, P:0)
Faculty Name	Dr. Ravi Datt Yadav
Program	Bachelor of Mechanical Engineering
Academic Year and Semester	w.e.f. 2024-25, 1 <sup>st</sup> Semester

## 1. Course Description

Basics of mechanical engineering is a multi-disciplinary course in Mechanical Engineering. The objective of this is to enable the students to solve the basics of mechanical engineering.

## 2. Student Learning Outcomes :

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

To familiarize the students with the concepts of thermodynamics, fluid mechanics, power plants, engineering materials, manufacturing processes, and metrology.

## 3. Required Textbook and Reference Material:

- Material will be provided by faculty.

## 4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

## 5. Evaluation:

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Assignment	10%	Sheet Work( A-4 Size sheet in a well mannered way )
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
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<b>COURSE TITLE</b>	Workshop Practice
Course Code	ME103
Credits	3 (L:0 ,T:0, P:3)
Faculty Name	Dr. Ravi Datt Yadav
Program	Bachelor of Mechanical Engineering
Academic Year and Semester	w.e.f. 2024-25, 1 <sup>st</sup> Semester

### 2. Course Description

Workshop Practice is an ability enhancement course in Mechanical Engineering. The objective of this is to enable the students to solve the basics of mechanical engineering.

### 2. Student Learning Outcomes :

**At the end of this course, students should be able to:**

To familiarize the students with manufacturing shops like Carpentry, Foundry, Welding, Machining, Fitting, and Smithy.

### 3. Required Textbook and Reference Material:

- Material will be provided by faculty.

### 4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

### 5. Evaluation:

<b>COMPONENT</b>	<b>WEIGHTAGE</b>	<b>DETAILS</b>
Assignment	10%	Sheet Work( A-4 Size sheet in a well mannered way )



Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
Attendance & Classroom participation	10%	Students should have at least 75% attendance
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<b>COURSE TITLE</b>	Communication Skills
Course Code	HU101
Credits	3 (L:0 ,T:0, P:3)
Faculty Name	Dr. Dhampal
Program	Bachelor of Mechanical Engineering
Academic Year and Semester	w.e.f. 2024-25, 1 <sup>st</sup> Semester

### 1. Course Description

Communication skills is skill enhancement course in Mechanical Engineering. The objective of this is to enable the students to learn about the reading, writing and communication.

### 2. Student Learning Outcomes :

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

To impart essential skills required for effective communication in English language.

### 3. Required Textbook and Reference Material:

- Material will be provided by faculty.

### 4. Session Plan :

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### 5. Evaluation:

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Assignment	10%	Sheet Work( A-4 Size sheet in a well mannered way )
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<b>COURSE TITLE</b>	Python Programming Laboratory
Course Code	CS102
Credits	3 (L:0 ,T:0, P:3)
Faculty Name	Dr. Monika
Program	Bachelor of Mechanical Engineering
Academic Year and Semester	w.e.f. 2024-25, 1 <sup>st</sup> Semester

### 1. Course Description

Python programming laboratory is an value enhancement course in Mechanical Engineering. The objective of this is to enable the students to solve the basics of computer coding.

### 2. Student Learning Outcomes :

**At the end of this course, students should be able to:**

Develop the application specific codes using python. Understand Strings, Lists, Tuples and Dictionaries in Python, verify programs using modular approach, file I/O, Python standard library. Implement Digital Systems using Python.

### 3. Required Textbook and Reference Material:

- Material will be provided by faculty.

### 4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

### 5. Evaluation:

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Assignment	10%	Sheet Work( A-4 Size sheet in a well mannered way )

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<b>COURSE TITLE</b>	Mathematics - II
Course Code	MA102
Credits	4 ( L:3,T:1, P:0)
Faculty Name	Miss Meenu Nain
Program	Bachelor of Mechanical Engineering
Academic Year and Semester	w.e.f. 2024-25, 2 <sup>nd</sup> Semester

### 1. Course Description:

Mathematics-I is an essential program in Mechanical Engineering. The objective of this subject is to enable the students to prepare solution for the mathematics problems with the connection in real life.

### 2. Student Learning Outcomes :

**At the end of this course, students should be able to:**

To impart knowledge of matrices and applications closed form and series solutions of Differential equations, Laplace Transform, Fourier series, Fourier Transform & their applications.

### 3. Required Textbook and Reference Material:

- Material will be provided by faculty.

### 4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

### 5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work( A-4 Size sheet in a well mannered way )
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<b>COURSE TITLE</b>	Physics-II
Course Code	AP102
Credits	4 ( L:3,T:0, P:1)
Faculty Name	Mr Kapil Sharma
Program	Bachelor of Mechanical Engineering
Academic Year and Semester	w.e.f. 2024-25, 2 <sup>nd</sup> Semester

### 1. Course Description:

Physics is an essential program in Mechanical Engineering. The objective of this subject is to enable the students to prepare solution for the physics problems with the connection in real life.

### 2. Student Learning Outcomes :

**At the end of this course, students should be able to:**

This course gives a balance account of the fundamentals of Physics as well as some of recent developments in this area best suited to the Engineering applications in different branches and to provide the knowledge and methodology necessary for solving problems in the field of engineering.

### 3. Required Textbook and Reference Material:

- Material will be provided by faculty.

#### 4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

#### 5. Evaluation:

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Assignment	10%	Sheet Work( A-4 Size sheet in a well mannered way )
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<b>COURSE TITLE</b>	Basic Electrical Engineering
Course Code	EE102
Credits	4 ( L:3,T:0, P:1)
Faculty Name	Mr Kapil Sharma
Program	Bachelor of Mechanical Engineering
Academic Year and Semester	w.e.f. 2024-25, 2 <sup>nd</sup> Semester

### 1. Course Description:

Basics of Electrical Engineering is an essential program in Mechanical Engineering. The objective of this subject is to enable the students to prepare solution for the Electrical Engineering problems with the connection in real life.

### 2. Student Learning Outcomes :

**At the end of this course, students should be able to:**

To familiarize the students with the concepts of electrical circuits, magnetic circuits, transformer and measuring instruments.

### 3. Required Textbook and Reference Material:

- Material will be provided by faculty.

### 4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

### 5. Evaluation:

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<b>COURSE TITLE</b>	Engineering Materials
Course Code	ME104
Credits	2 ( L:2,T:0, P:0)
Faculty Name	Dr Ravi Datt Yadav
Program	Bachelor of Mechanical Engineering
Academic Year and Semester	w.e.f. 2024-25, 2 <sup>nd</sup> Semester

### 1. Course Description:

Engineering Materials is a minor program in Mechanical Engineering. The objective of this is to enable the students to solve the basics in material characterization with the connection of daily life.

### 2. Student Learning Outcomes :

**At the end of this course, students should be able to:**

To Classify the various materials that will be essential for the mechanical engineering applications. Express the mechanical properties of metals and their testing procedures. Understand the application of materials and their processing. Understand the requirement and need for the development of the new materials.

### 3. Required Textbook and Reference Material:

- Material will be provided by faculty.

### 4. Session Plan :

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### 5. Evaluation:

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Assignment	10%	Sheet Work( A-4 Size sheet in a well mannered way )
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<b>COURSE TITLE</b>	Environmental Science
Course Code	EN102
Credits	3 ( L:3,T:0, P:0)
Faculty Name	Dr. Sarita
Program	Bachelor of Mechanical Engineering
Academic Year and Semester	w.e.f. 2024-25, 2 <sup>nd</sup> Semester

### 1. Course Description:

Environmental science is a multi-disciplinary course in Mechanical Engineering. The objective of this is to enable the students to solve the basics in basics knowledge with the connection of daily life.

### 2. Student Learning Outcomes :

**At the end of this course, students should be able to:**

To introduce basic fundamentals of Environmental Science.

### 3. Required Textbook and Reference Material:

- Material will be provided by faculty.

### 4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

## 5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work( A-4 Size sheet in a well mannered way )
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Students cannot operate any network enabled devices such as cell phones, e- tabs, I-pads or any other electronic network enabled devices inside the classroom during the sessions unless specifically instructed by the faculty. In case you are compelled to carry it in person, you may keep it in the switched off mode. Anyone found to operate such devices during the session timings will be penalized as per the rules. No discussion or negotiation will be entertained at all with respect to this.

<b>COURSE TITLE</b>	Constitution of India
Course Code	LA101
Credits	2 ( L:2,T:0, P:0)
Faculty Name	Mr. Imran Hasimi
Program	Bachelor of Mechanical Engineering
Academic Year and Semester	w.e.f. 2024-25, 2 <sup>nd</sup> Semester

### 1. Course Description:

Constitution of India is an ability enhancement course in Mechanical Engineering. The objective of this is to enable the students to learn the basics of constitution with the connection of daily life.

### 2. Student Learning Outcomes :

**At the end of this course, students should be able to:**

Discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics. Discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India. Discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution. Discuss the passage of the Hindu Code Bill of 1956.

### 3. Required Textbook and Reference Material:

- Material will be provided by faculty.

### 4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

### 5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work( A-4 Size sheet in a well mannered way )
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid-Sem Exam	20%	Midterm exam must be cleared by students for appearing in final examination.
End- Sem Exam	50%	The end term exam must be cleared for appearing in next semester with a minimum passing criteria .

## 6. Academic Integrity:

- Please note that students involved in academic dishonesty will receive a **ZERO** grade on the particular component in which the infraction occurred.
- Academic dishonesty consists of misrepresentation by deception or by other fraudulent means. In an academic setting this may take the form of copying or use of unauthorized aids in tests, assignments, examinations, term papers, or cases; plagiarism; talking during in-class examinations; submission of work that is not your own without citation; submission of work generated by another person; aiding and abetting another student's dishonesty; and giving false information for the purpose of gaining credits.

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<b>COURSE TITLE</b>	C Programming and Data Structure
Course Code	CS103
Credits	3 (L:2 ,T:0, P:1)
Faculty Name	Dr. Monika
Program	Bachelor of Mechanical Engineering
Academic Year and Semester	w.e.f. 2024-25, 2 <sup>nd</sup> Semester

### 1. Course Description

C programming and data structure is skill enhancement course in Mechanical Engineering. The objective of this is to enable the students to learn about the reading, writing and communication.

### 2. Student Learning Outcomes :

**At the end of this course, students should be able to:**

Understand the various steps in Program development. Explore the basic concepts in C Programming Language. Develop modular and readable C Programs. Understand the basic concepts such as Abstract Data Types, Linear and Non-Linear Data structures. Apply data structures such as stacks, queues in problem solving. To understand and analyze various searching and sorting algorithms.

### 3. Required Textbook and Reference Material:

- Material will be provided by faculty.

### 4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

### 5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work( A-4 Size sheet in a well mannered way )
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.
Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid-Sem Exam	20%	Midterm exam must be cleared by students for appearing in final examination.
End- Sem Exam	50%	The end term exam must be cleared for appearing in next semester with a minimum passing criteria .

### 6. Academic Integrity:

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<b>COURSE TITLE</b>	Elements of Mechanical Engineering
Course Code	ME102
Credits	2 (L:0 ,T:0, P:2)
Faculty Name	Dr. Ravi Datt Yadav
Program	Bachelor of Mechanical Engineering
Academic Year and Semester	w.e.f. 2024-25, 2 <sup>nd</sup> Semester

### 1. Course Description

Element of mechanical engineering value added course in Mechanical Engineering. The objective of this is to enable the students to learn about the tools and gauges.

### 2. Student Learning Outcomes :

**At the end of this course, students should be able to:**

Understand the operation, usage and applications of different measuring instruments and tools. Examine the different characteristics of instruments like accuracy, precision etc. Prepare simple composite components and joining different materials using soldering process. Identify tools & learn practically the process of turning, milling, grinding on mild steel pieces.

### 3. Required Textbook and Reference Material:

- Material will be provided by faculty.

### 4. Session Plan :

- Session plan will be provided by faculty members according to the syllabus.

### 5. Evaluation:

COMPONENT	WEIGHTAGE	DETAILS
Assignment	10%	Sheet Work( A-4 Size sheet in a well mannered way )
Tests	10%	Test would be taken to assess the knowledge about topics related to daily basis classes.



Attendance & Classroom participation	10%	Students should have at least 75% attendance
Mid-Sem Exam	20%	Midterm exam must be cleared by students for appearing in final examination.
End- Sem Exam	50%	The end term exam must be cleared for appearing in next semester with a minimum passing criteria .

## 6. Academic Integrity:

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