

# PLANNED SYLLABUS COVERAGE(Theory)

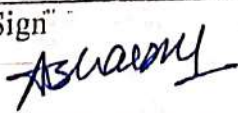
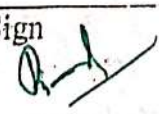
|                                       |             |                                                                  |                                                                                                                                                                                                                                     |                                  |                                       |          |
|---------------------------------------|-------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------------------------------|----------|
| G P<br>Kangra<br>SYLLABUS<br>COVERAGE |             | Department: Mech. Engg. Subject Automotive pollution and control |                                                                                                                                                                                                                                     |                                  |                                       |          |
|                                       |             | Course open-Elective-II Duration 14 weeks                        |                                                                                                                                                                                                                                     |                                  |                                       |          |
|                                       |             | Total Periods 56 Theory 56                                       |                                                                                                                                                                                                                                     |                                  |                                       |          |
| Sr. No.                               | Period Nos. | Topic                                                            | Details                                                                                                                                                                                                                             | Instruction Reference            | Additional Study Recommended          | R. marks |
| 01.                                   | 1-10        | Emission from SI and CI engines                                  | Emission formation in SI and CI engines- factors influencing emission, effects of pollution on environment and human health.                                                                                                        | Automobile Engg. by R.K. Singhal |                                       |          |
| 02.                                   | 11-22       | Emission testing.                                                | Emission test cycles. constant volume sampling method, non dispersive infrared analyzer (NDIR) flame ionization detector (FID), chemical luminescence analyzer, smoke meter and gas chromatograph.                                  |                                  |                                       |          |
| 03.                                   | 23-32       | Emission control techniques.                                     | Air-fuel (A/F) ratio control. crankcase emission control. Fuel evaporation and control, EGR, SCR, catalytic converter, particulate trap, effect of engine combustion on human body, engine modifications and emission technologies. |                                  | Automobile Engg. by Dr. Kirpal Singh. |          |

To be approved from concerned HOD within seven days from beginning of semester & will be kept with the concerned teacher in his file.

| Sr. No. | Period Nos. | Topic                    | Details                                                                                                                                          | Instruction Reference | Additional Study Recommended | Remarks |
|---------|-------------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------------|---------|
| 4       | 33-44       | Noise and noise control. | Introduction to sound, noise measurements, control of air borne and structure borne noise, use of absorber, criteria for selection of materials. |                       |                              |         |
| 5       | 45-56       | Emission norms.          | Emission norms- Euro 4 Bharat norms, effects of fuel properties and additives, emission from alternate fuels.                                    |                       |                              |         |

Extra Topics to be covered beyond the scope of the syllabus (as required by industry/ as recommended by Teacher which he/ she finds necessary)

| Sr. No. | Period No. | Topic Covered | Instruction Reference | Additional Study recommended | Remarks |
|---------|------------|---------------|-----------------------|------------------------------|---------|
|         |            |               |                       |                              |         |

| Approved / Not approved |                                                                                                       |
|-------------------------|-------------------------------------------------------------------------------------------------------|
| Date<br>27/01/26        | HOD Sign<br>       |
| Date                    | Principal Sign<br> |

additional sheets (if required).

# PLANNED SYLLABUS COVERAGE(Theory)

| G P Kangra         |             | Department: <u>Mechanical Engg.</u> Subject <u>Welding Technology.</u> |                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Course <u>DIPLOMA</u> Duration <u>3 years.</u> |                                          |         |
|--------------------|-------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|------------------------------------------|---------|
| SYLLABUS COVERAGE. |             | Total Periods <u>144</u> Theory <u>56.</u>                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                |                                          |         |
| Sr. No.            | Period Nos. | Topic                                                                  | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Instruction Reference                          | Additional Study Recommended             | Remarks |
| 1                  | 1-12        | Introduction to welding                                                | ① Principle of welding, classification of welding process, Advantages, Limitations of welding, welding applications, Weldability.<br>② Gas Welding: Principle of operation, oxyacetylene flame, types of flames, combustion of flame, welding techniques, filler rods & fluxes for welding, Gas welding equipments & accessories, oxygen gas cylinder, Acetylene gas cylinder, Gas regulators, Pressure Regulator, oxygen & Acetylene Hoses, welding torch. | Welding Technology by O.P. Sharma              | Foundry, Forming and welding by P.N. Rao |         |
| 2                  | 13-27       | Arc Welding/Resistance welding.                                        | Arc Welding process, striping arc, Arc length, Arc blow, Arc welding M/c, types & details, AC & DC welding and effect of polarity. Electrodes - classification, specifications and selection, coated electrodes, welding defects. Principle: Advantages, disadvantages. Applications, spot welding, Seam welding, projection welding, Butt welding, upset welding, Flush butt welding, Precision welding. CT-I.                                             |                                                |                                          |         |
| 3.                 | 28th        |                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                |                                          |         |
| 4.                 | 29-37       | Other welding processes.                                               | Submerged Arc welding, TIG, MIG, Electroslag welding, Plasma Arc, Ultrasonic, Thermit, Atomic Hydrogen electron Beam laser Beam welding.                                                                                                                                                                                                                                                                                                                    |                                                |                                          |         |

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| Sr. No. | Period Nos. | Topic                                                     | Details                                                                                                                                                                                                                                                                                                                                                                        | Instruction Reference             | Additional Study Recommended   | Remarks |
|---------|-------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|--------------------------------|---------|
| 5-      | 38-45.      | Brazing/soldering                                         | Principle; Procedure; Brazing filler alloys, Brazing fluxes. Advantage Limitation and Applications, CT-II                                                                                                                                                                                                                                                                      |                                   |                                |         |
| 6-      | 46-54.      | Welding of Diff. met materials / Weld defects and Testing | Principles, Soldering, Soldering fluxes, Soldering methods; PCB soldering. Welding Cast iron, Alloy steel, Tool steel, Aluminum, Magnesium, Stainless steel, steel, copper. HT-I<br>Types of weld defects; Cause and Prevention, Destructive testing of welds, Non-Destructive test, fluorescent Penetration test, magnetic particle test, ultrasonic test, Radiographic test. | Welding Technology by op. Sharma. | Foundary & Welding by P.N. Rao |         |
| 7-      | 55-56       |                                                           | Revision of syllabus and doubt clearing for final exam.                                                                                                                                                                                                                                                                                                                        |                                   |                                |         |

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|---------|------------|---------------|-----------------------|------------------------------|---------|
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| Date<br>27/01/2026      | HOD Sign<br>A. Sharma         |
| Date                    | Principal Sign<br>[Signature] |

# PLANNED SYLLABUS COVERAGE(Theory)

GPK-F-17

| G P Kangra        |             | Department: <u>Mechanical Engg.</u> Subject <u>Open Elective-III</u> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                 |                              |         |
|-------------------|-------------|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------|
| SYLLABUS COVERAGE |             | Course <u>Diploma</u> Duration <u>3 years</u>                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                 |                              |         |
|                   |             | Total Periods <u>56</u> Theory <u>56</u>                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                 |                              |         |
| Sr. No.           | Period Nos. | Topic                                                                | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Instruction Reference                                                                                                           | Additional Study Recommended | Remarks |
| 1                 | 1-10        | Introduction to Management                                           | Definitions and Concept of Management, Functions of Management - Planning, organizing, Staffing, Coordinating and Controlling, Various areas of Management, Structure of an organization.                                                                                                                                                                                                                                                                        | Industrial Engg & Management by O.P. Khanna.<br>Industrial Engg. and organization Management by Dr. S.K. Sharma, Savita Sharma. |                              |         |
| 2.                | 11-24       | Self Management and development                                      | Life Long Learning Skills, Concept of Personality Development, Ethics and moral values, Concept of physical Development, Significance of health Hygiene, body gestures, Time Management Concept and its importance, Intellectual Development:- Reading, skills, speaking skills, listening skills, writing Skills (Note Taking, rough draft, revision, editing and final drafting) Concept of critical thinking and Problem Solving (Approaches Steps and Cases) | Basics of Management by N.P. Singh<br>Eagles Prakashan<br><br>do                                                                |                              |         |

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| Sr. No. | Period Nos. | Topic                          | Details                                                                                                                                                                                   | Instruction Reference | Additional Study Recommended | Remarks |
|---------|-------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------------|---------|
| 3.      | 25-32       | Leadership and Motivation      | Meaning, Importance - types of Leadership and Qualities of a good leader, Concept and importance of motivation drives and incentives, Types of motivation.                                | -do-                  |                              |         |
| 4.      | 33-48       | Legal Environment and business | (a) various labour laws and its necessity, Salient features of Income Tax act - Computation of Income Tax on Salary Income, Sales and Excise Tax act - VAT Excise duty, Factory Act 1948. | -do-                  |                              |         |

Extra Topics to be covered beyond the scope of the syllabus (as required by industry/ as recommended by Teacher which he/ she finds necessary)

| Sr. No. | Period No. | Topic Covered | Instruction Reference | Additional Study recommended | Remarks |
|---------|------------|---------------|-----------------------|------------------------------|---------|
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| Date<br>27/01/26        | HOD Sign<br>Ashwini    |
| Date                    | Principal Sign<br>Pink |

# Use additional sheets (if required).

Remarks

# PLANNED SYLLABUS COVERAGE(Theory)

GPK-F-17

P  
Kangra  
SYLLABUS  
COVERAGE

Department: Mechanical Engg Subject open Elective-III  
Basics of management  
 Course Diploma Duration 3 years  
 Total Periods 56 Theory 56

| Sr. No. | Period Nos. | Topic                     | Details                                                                                                                                                         | Instruction Reference | Additional Study Recommended | Remarks |
|---------|-------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------------|---------|
|         |             |                           | (b) Labour welfare schemes including wage payment - types, system of wage payment and incentives.                                                               | -do-                  |                              |         |
|         |             |                           | (c) Intellectual property rights (IPR) - Concepts, <del>and</del> infringement and remedies related to patents, Copy rights, Trademarks and design              |                       |                              |         |
|         |             |                           | (d) Accident and Safety:- Concept of Accident and safety, Causes, Safety precautions and various measures after accidents.                                      |                       |                              |         |
| 5       | 49-56       | Total Quality management. | Meaning and Concept of Total Quality Management, various factors/ measures to achieve TOM in an organization, standards and codes - National and international. | -do-                  |                              |         |

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| Sr. No. | Period Nos. | Topic | Details | Instruction Reference | Additional Study Recommended | Remarks |
|---------|-------------|-------|---------|-----------------------|------------------------------|---------|
|         |             |       |         |                       |                              |         |

**Extra Topics to be covered beyond the scope of the syllabus (as required by industry/ as recommended by Teacher which he/ she finds necessary)**

| Sr. No. | Period No. | Topic Covered | Instruction Reference | Additional Study recommended | Remarks |
|---------|------------|---------------|-----------------------|------------------------------|---------|
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| Date<br>27/01/26        | HOD Sign<br>ASHA        |
| Date                    | Principal Sign<br>A. L. |

\* Use additional sheets (if required).

# PLANNED SYLLABUS COVERAGE(Theory)

Department: Mechanical Engg. Subject: Entrepreneurship and Start-ups

Course: Common course Duration: 14 weeks

Total Periods: 14 x 4 = 56 Theory: 56

| Period Nos. | Topic                                          | Details                                                                                                                                                               | Instruction Reference                                                                                             | Additional Study Recommended | R. marks |
|-------------|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|------------------------------|----------|
| 8           | Introduction to Entrepreneurship and Start-ups | Definition, Traits of an entrepreneur, Intra-preneurship, motivation<br>Types of Business structures<br>Similarities / differences between entrepreneurs and managers | The Start-up Owner's Manual:<br>The step by step guide for building a great company<br>by Steve Blank & Bob Dorf. |                              |          |
| 9-16        | Business Ideas and their implementation        | Discovering ideas and visualizing the business<br>Activity map.<br>Business Plan                                                                                      |                                                                                                                   |                              |          |
| 17-24       | Idea to start-up                               | Market Analysis - Identifying the target market.<br>Competition evaluation and strategy Development<br>Marketing and accounting<br>Risk analysis.                     |                                                                                                                   |                              |          |

proved from concerned HOD within seven days from beginning of semester & will be kept with the concerned teacher

| Sr. No. | Period Nos. | Topic                             | Details                                                                                                                     | Instruction Reference | Additional Study Recommended |
|---------|-------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------------|
| 4.      | 24-32       | management                        | Company's Organization structure<br>(Requ)<br>Recruitment and management of talent.<br>Financial organization & management. |                       |                              |
| 5.      | 33-40       | Financing and protection of ideas | Financing and protection of ideas<br>Financing methods available for start-ups                                              |                       |                              |

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| Sr. No. | Period No. | Topic Covered | Instruction Reference | Additional Study recommended |
|---------|------------|---------------|-----------------------|------------------------------|
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| Approved / Not approved |                            |
| Date<br>27/01/26        | HOD Sign<br><i>Ashwini</i> |
| Date                    | Principal Sign<br><i>h</i> |

# Use additional sheets (if required).

# PLANNED SYLLABUS COVERAGE(Theory)

| PLANNED SYLLABUS COVERAGE(Theory)               |                                                                                                                                                                                                       |                                                                                                                                            |                              |          |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------|
| Department: <u>Mechanical Engg</u>              |                                                                                                                                                                                                       | Subject <u>Entrepreneurship and startups</u>                                                                                               |                              |          |
| Course <u>Common course</u>                     |                                                                                                                                                                                                       | Duration <u>14 weeks</u>                                                                                                                   |                              |          |
| Total Periods <u>14x4=56</u>                    |                                                                                                                                                                                                       | Theory <u>56</u>                                                                                                                           |                              |          |
| Topic                                           | Details                                                                                                                                                                                               | Instruction Reference                                                                                                                      | Additional Study Recommended | R. marks |
| Exit strategies for entrepreneurs<br>bankruptcy | in India<br>Communication of Ideas to potential investors.<br>Investor - Pitch<br>Patenting and Licenses<br><br>Exit strategies for entrepreneurs, bankruptcy and succession and harvesting strategy. | The Lead startup:<br>How Today's Entrepreneurs use Continuous Innovation to create Radically successful Businesses<br><br>by<br>Eric Reis. |                              |          |

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