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| **LAB COs** |
| **FEL101** | **Engineering Physics-I** |
| FEL101.1 | Determine the value of Planck’s constant (h) and understand its application in quantum mechanics. |
| FEL101.2 | Identify different crystal structures and draw miller indices to verify the theory learned in crystallography. |
| FEL101.3 | Plot the I-V characteristics of various semiconductor devices. |
| FEL101.4 | Calculate the various parameters based on the experiments of interference in thin films. |
| FEL101.5 | Compare the charging and discharging characteristics of supercapacitors. |
| FEL101.6 | Apply the knowledge and concept of physics in designing and developing mini-projects. |
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| **FEC102** | **Engineering Chemistry-I** |
| FEL102.1 | Estimate hardness of water by EDTA method & Ion Exchange Method. |
| FEL102.2 | Determine viscosity of lubricant using Redwood viscometer. |
| FEL102.3 | Determine COD & chloride content of water using Mohr's method. |
| FEL102.4 | Determine pH of solutions using the pH meter. |
| FEL102.5 | Demonstrate Phenol-formaldehyde & Biodegradable plastic synthesis using corn starch. |
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| **FEL103** | **Engineering Mechanics** |
| FEL103.1 | Verify the law of polygon, varignon's theorem and find the resultant of given force system |
| FEL103.2 | Verify the conditions of equilibrium and find the beam reactions |
| FEL103.3 | Analyse the friction between two different surfaces. |
| FEL103.4 | Demonstrate the understanding of Centroid and its significance and locate the same |
| FEL103.5 | Illustrate different types of motions and establish Kinematic relations for particles and rigid body. |
| FEL103.6 | Verify the law of conservation of momentum and find the coefficient of restitution. |
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| **FEL104** | **Basic Electrical Engineering** |
| FEL104.1 | Implement and verify behavior of DC circuits using network theorems |
| FEL104.2 | Observe frequency response of RLC circuit for the given resonance frequency. |
| FEL104.3 | Demonstrate relationship between voltage/current/power in three phase star/delta circuits. |
| FEL104.4 | Determine efficiency of the transformer for OC/SC test |
| FEL104.5 | Demonstrate the working of Single Phase/ Three Phase Induction Motor |
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| **FEL105** | **Basic Workshop-I** |
| FEL105.1 | Acquire the skill to identify and use of the various hand tools and measuring instruments. |
| FEL105.2 | Model Various basic prototypes in the trade of fitting such as square, hexagonal and V Male Female joint |
| FEL105.3 | Break a part Personal Computer, perform Basic troubleshooting and maintenance, identify network components and perform Basic networking. |
| FEL105.4 | Perform various basic domestic plumbing operations such as pipe cutting, threading, fitting etc. |
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| **FEL201** | **Engineering Physics-II** |
| FEL201.1 | Determine the wavelength of light and number of lines/cm of grating by using various light sources. |
| FEL201.2 | Measure the numerical aperture of a given optical fibre. |
| FEL201.3 | Calculate the divergence of the laser beam. |
| FEL201.4 | Model the different carbon nanostructures using open-source simulation software like Avogadro. |
| FEL201.5 | Examine the I-V characteristics of a photodiode and measure the distance using an ultrasonic distance meter. |
| FEL201.6 | Execute the working models of the mini-projects related to physics. |
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| **FEL202** | **Engineering Chemistry-II** |
| FEL202.1 | Determine moisture & ash content of coal. |
| FEL202.2 | Determine saponification value & acid value of oil. |
| FEL202.3 | Determine flash point of a lubricating oil |
| FEL202.4 | Determine Na,K & Cu, Zn system |
| FEL202.5 | Demonstrate synthesis of biodisel from edible oil. |
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| **FEL 203** | **Engineering Graphics** |
| FEL203.1 | Apply the basic principles of projections in Projection of Lines and Planes and Curves |
| FEL203.2 | Apply the basic principles of projections in Projection of Solids & Section of solids |
| FEL203.3 | Apply basic AutoCAD skills to draw different views of a 3D object |
| FEL203.4 | Apply basic AutoCAD skills to draw the isometric view from the given two views |
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| **FEL 204** | **Computer Programming** |
| FEL 204.1 | Translate given algorithms to a program. |
| FEL 204.2 | Use variables, derived data types and control structures to write c program |
| FEL 204.3 | Write iterative as well as recursive programs. |
| FEL 204.4 | Represent data in arrays, and strings manipulate them through a program |
| FEL 204.5 | Use Structure-Union for solving complex computational problem |
| FEL 204.6 | Declare pointers and demonstrate call by reference concept. |
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| **FEL205** | **PCE-1 LAB** |
| FEL205.1 | Interpret spoken discourse through various listening activities. |
| FEL205.2 | Construct spoken script for public speech and deliver it effectively |
| FEL205.3 | Select correct and appropriate vocabulary in different context. |
| FEL205.4 | Plan well-structured business letters and technical guidelines and draft it. |
| FEL205.5 | Demonstrate impressive and ethical attributes in professional as well as social situations to communicate effectively. |
| FEL205.6 | Analyse text meant for reading and comprehend accurately |
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| **FEL206** | **Basic Workshop-II** |
| FEL206.1 | Use different carpentry tools and perform the basic operations like joints and wood turning practice. |
| FEL206.2 | Demonstrate the use of furnace and produce the simple forging job. |
| FEL206.3 | Demonstrate the safe wiring practices for the connection of simple electrical load/equipment. |
| FEL206.4 | Demonstrate the skill to fabricate and assemble PCB. |