Government Polytechnic Miraj
Department of Mechanical Engineering
List of Course Outcomes with e - learning resources

S. N.	Course and course code	Course Outcomes		Learning Resources
1	M111 - English (ENG)- 22101	C111-a	Formulate grammatically correct sentences.	www.grammarly.com/blog https://www.britishcouncil.in/english/learnonline
		C111-b	Summarize comprehension passages.	www.youtube.com./@rampatil2608
		C111-c	Compose dialogues and paragraphs for different situations.	https://www.britishcouncil.in/english/learnonline
		C111-d	Use relevant words as per contact.	www.makeuseof.com,www.vocabulary.com
		C111-e	Delivered prepared speeches to express ideas, thoughts and emotions.	https://www.newagegolden.com
2	M112: Basic Science (Physics & Chemistry) (BSC)- 22102	C112-a	Estimate error in the measurement of physical quantities.	http://hyperphysics.phy-astr.gsu.edu/hbase/index.html
		C112-b	Apply the principles of electricity and magnetism to solve engineering problems.	https://ocw.mit.edu/search/?d=Physics&s=department_course_numbers.sort_coursenum
		C112-c	Use the basic principles of heat and optics in related engineering applications.	https://www.edx.org/
		C112-d	Apply the catalysis process in Industries.	https://www.chemguide.co.uk/
		C112-e	Use corrosion preventive measures in Industries.	https://eoncoat.com/corrosion-prevention-methods/
		C112-f	Use relevent engineering materials in Industries.	https://www.andrews-cooper.com/tech-talks/materials-selection-guide-selection-of-engineering-materials/
3	M113: Basic Mathematics (BMS) - 22103	C113-a	Apply the concepts of algebra to solve engineering related problems.	https://www.youtube.com/watch?v=DvkQa-hxXjI
		C113-b	Utilize basic concepts of trigonometry to solve elementary engineering problems.	https://www.youtube.com/watch?v=m9c_Gom_O2s&list=PL9zFgBale5fv7d6kreATTWEgWmR547oVg www.cuemaths.com
		C113-c	Solve basic engineering problems under given conditions of straight line.	https://www.youtube.com/watch?v=ffJmYKgFpac&list=PLT3bOBUU3L9hh6xxjP3f_C7RRny9RfG1N
		C113-d	Solve the problems based on measurement of regular	https://www.youtube.com/watch?v=2x8Yk7fWzAs

			closed figures and regular solids.	https://testbook.com/maths/mensuration, www.cuemaths.com
		C113-e	Use basic concept of statistics to solve engineering related problems.	nptel.ac.in, https://www.youtube.com/watch?v=uoLLwUabVHM
4	M114: Fundamentals of ICT (ICT)-22001	C114-a	Use computer system and its peripherals.	https://youtu.be/d5gPTWZ35PI?si=T8FcClJJJcx-j0SD
		C114-b	Prapare Business documents using word processing tools.	https://youtu.be/QLfL05wPLMs?si=WssOcRuElGLO33hW
		C114-c	Interpret data and represent it graphically using spread sheet.	https://youtu.be/FgbEIDUs3gg?si=c7XkzXs2YrA50y7E
		C114-d	Prepare professional presentation.	https://youtu.be/WJe_oYa3itE?si=-keIq3fpyl7cN4VA
		C114-e	Use different types of web browsers.	https://youtu.be/KqycWogup0U?si=UCaFNYU2JqI73oNh
5	M115: Engineering Graphics (EGM)-22002	C115-a	Draw geometrical figures and engineering curves.	https://youtu.be/XlQ9INBj1n8?si=swUeKIeMzqNydE3p
		C115-b	Draw the views of given objects using principles of orthographic projection.	https://youtu.be/dKNnTxwSS-Q?si=X9VWg1uiaCNeLeYp
		C115-c	Draw isometric views of given component or from orthographic projection.	https://youtu.be/zKFAbmnUvGU?si=808es8AFj7DhxFBS
		C115-d	Use drawing codes, conventions and symbols as per IS SP - 46 in engineering Drawing	https://youtu.be/CNkdeyEcW2E?si=WPJxXqY2t_2ko6ym
		C115-e	Draw free hand sketches of given engineering elements.	https://youtu.be/Jzr5PTbvkVI?si=vRB8P3wFZbd8EV0L
6	M116: Workshop Practice(WPM)-22004	C116-a	Select tools and machinery according to job.	https://youtu.be/J63dZsw7Ia4?si=_Xh0eq3LLegl43kK
		C116-b	Use hand tools in different shops for performing different operation..	https://www.youtube.com/watch?v=APTsbOw8Mq4
		C116-c	Operate equipment and machinery in different shops.	https://youtu.be/jbRgJbIGAwc?si=YgsUz0rfZFN--RWW
		C116-d	Prepare job according to drawing.	https://youtube.com/shorts/e-rKi68DeWc?si=8YoU5O3UZ2XOvqxs
		C116-e	Maintain workshop related tools, equipment and machinery.	https://youtu.be/DuU2mnJcxPM?si=j-OIRfPi3lI9TNN6
7	M121: Applied Science	C121-a	Select relevent material in Industry by analising it's physical properties.	https://youtu.be/KX1_NqNTIqw?si=YrdDnJtIO6AZmoqL
		C121-b	Apply Laws of Motion in various applications.	https://youtu.be/tjlKrVuFES8?si=7arOKvawNUtncyIi

	(Physics & Chemistry) (ASM) -22202	C121-c	Use LASER's,X-Rays and photoelectric sensors.	https://youtu.be/l1rjErRvbgw?si=ALyAjOfxdwlRAEdt
		C121-d	Select the relevent metallurgical process related to industrial applications.	https://youtu.be/MgukjCT9o80?si=lnLHG4jRZkRlUp9V
		C121-e	Use relevent water treatment to solve industrial problems.	https://youtu.be/NefIxAXF1GM?si=EHx9y0KbCDsDft9a
		C121-f	Use relevent fuel in relevent applications.	https://youtu.be/a63QVgbbYzg?si=BIrD9Z77nRULEy6x
8	M122: Applied Mechanics (AME) -22203	C122-a	Identify the force systems for a given conditions by applying basics of mechanics.	https://econtent.msbte.edu.in/econtent/econtent/IC/ajax/upload/22203/M2_U1_01_Mechanics_and_force_system.mp4
		C122-b	Select the relevant simple Lifting machine(s) for the given purpose.	https://econtent.msbte.edu.in/econtent/econtent/IC/ajax/upload/22203/M2_U2_01_Lifting_Machines.mp4
		C122-c	Determine the unknown force(s) of different engineering systems.	https://econtent.msbte.edu.in/econtent/econtent/IC/ajax/upload/22203/ME2_U3_01_Resolution_and_Composition.mp4
		C122-d	Check the stability of various force systems.	https://econtent.msbte.edu.in/econtent/econtent/IC/ajax/upload/22203/ME2_U4_01_Equilibrium.mp4
		C122-e	Apply the principles of friction in various conditions for useful purposes.	https://econtent.msbte.edu.in/econtent/econtent/IC/ajax/upload/22203/ME2_U5_Friction.mp4
		C122-f	Find the centroid and center of gravity of various components in engineering systems.	https://econtent.msbte.edu.in/econtent/econtent/IC/ajax/upload/22203/ME2_U6_Centroid_and_Centre_of_Gravity.mp4
9	M123: Applied Mathematics (AMP) - 22206	C123-a	Calculate the equation of tangents,Maxima,Minima and radius of curvature by differentiation	https://econtent.msbte.edu.in/econtent/econtent_home.php
		C123-b	Solve the given problems of integration using suitable methods	https://econtent.msbte.edu.in/econtent/econtent_home.php
		C123-c	Apply the concept of integration to find area and volume	https://econtent.msbte.edu.in/econtent/econtent_home.php
		C123-d	Solve the differential equation of first order and first degree using suitable methods	https://econtent.msbte.edu.in/econtent/econtent_home.php
		C123-e	Utilize basic concepts of probability distribution to solve elementary engineering problems	https://econtent.msbte.edu.in/econtent/econtent_home.php
10	M124: Engineering	C124-a	Draw projections of 2D and 3D standard regular entities.	PROJECTION OF PLANES IN HINDI WITH ALL BASIC CONCEPTS (LECTURE-1) @TIKLESACADEMYOFMATHS

	Drawing (EDR)-22207	C124-b	Draw sectional views of objects.	SECTION OF SOLID SOLVED PROBLEM 1 AND DEVELOPMENT OF SURFACES PROBLEMS
		C124-c	Draw orthographic sectional views of objects.	https://youtu.be/JsuFisaXtdM?si=4-7Wn9qaTCo82DW9
		C214-d	Draw missing and auxiliary views of objects.	Auxiliary Planes_Concept_Lecture1
		C124-e	Use various drawing codes, conventions and symbols as per IS SP - 46.	L-02|CONVENTIONAL REPRESENTATION OF MACHINE COMPONENTS IN ENGINEERING DRAWING|MechInfoKVsir #TMC
		C124-f	Draw free hand sketches of given engineering elements.	https://youtu.be/Jzr5PTbvkVI?si=fERuREMoniiq-IdQ
11	M125: Basic Communication with Computers (BCC)-22009	C125-a	Communicate effectively by avoiding barriers in various formal and informal situations.	https://youtu.be/FxIwXNmijJw?si=RLx1QlhWCocFPh82
		C125-b	Communicate skill fully using non verbal methods of communication	Communicate skill fully using non verbal methods of communication
		C125-c	Give presentations using audio video aids.	https://youtu.be/LPREy0F3nuU?si=KDOcM88iV0kydB17
		C125-d	Write reports using correct guidelines.	https://youtu.be/860LtRxP3rw?si=6Y25E8hmWAejVj2M
		C125-e	Compose email and formal business letters.	https://youtu.be/7xUTguLaaXI?si=K3ahqNPnpG4Oam_T
12	M126: Mechanical Engineering Workshop (MEW)-22010	C126.a	Select tools and machinery according to job.	https://youtu.be/J63dZsw7Ia4?si=_Xh0eq3LLegl43kK
		C126.b	Use hand tools in different shops for performing different operations.	https://www.youtube.com/watch?v=APTsbOw8Mq4
		C126.c	Prepare composite / utility jobs according to drawing.	https://youtu.be/jbRgJbIGAwc?si=YgsUz0rfZFN--RW
		C126.d	Prepare composite / utility jobs according to drawing.	https://youtube.com/shorts/e-rKi68DeWc?si=8YoU5O3UZ2XOvqxs
		C126.e	Maintain workshop related tools, instruments and machines.	https://youtu.be/DuU2mnJcxPM?si=j-OIRfPi3lI9TNN6
13	M231: Strength of Materials(SOM)-22306	C231-a	Compute Moment of Inertia of symmetric and asymmetric structural sections.	https://curriculum.msbte.edu.in/msbteacmon/curdev/outer.php?q=get_course_content&prev=1
		C231-b	Estimate simple stresses in machine components.	https://curriculum.msbte.edu.in/msbteacmon/curdev/outer.php?q=get_course_content&prev=1
		C231-c	Perform test to evaluate mechanical properties according to India Standards.	https://curriculum.msbte.edu.in/msbteacmon/curdev/outer.php?q=get_course_content&prev=1

		C231-d	Compute shear force and bending moment and corresponding shear and bending stresses in beams subjected to point and uniformly distributed load.	1) https://curriculum.msbte.edu.in/msbteacmon/curdev/outer.php?q=get_course_content&prev=1 2) https://beamguru.com/
		C231-e	Estimate stresses in shafts under twisting moments.	1)https://curriculum.msbte.edu.in/msbteacmon/curdev/outer.php?q=get_course_content&prev=1 2) https://www.youtube.com/watch?v=1YTKedLQOa0
		C231-f	Estimate stresses in short member subjected to eccentric loading.	https://curriculum.msbte.edu.in/msbteacmon/curdev/outer.php?q=get_course_content&prev=1
14	M232: Basic Electrical & Electronics Engineering (BEE) 22310	C232-a	Use principles of Electrical and magnetic circuits to solve the engineering Problem.	https://youtu.be/CMlZPVEHbns?si=NG055tfgARu8dYxB
		C232-b	Determine Voltage and Current in AC Circuits.	https://youtu.be/ERIToctYUcQ?si=Fgfor7_4zfDBM_bx
		C232-c	Connect transformers and DC motors for specific requirements.	https://youtu.be/K29HtugpP0Y?si=PIcEZ38_GAKQUvVt
		C232-d	Identify electronic component in electrical circuit.	https://youtu.be/XfQs-PQaC_E?si=jD6tUAU6RLDBVFqW
		C232-e	Use relevant electric /electronics safely.	https://youtu.be/XfQs-PQaC_E?si=mJoWY5WrEVx2CXsc
		C232-f	Use relevant protective device safely.	https://youtu.be/1VbKExNbqqk?si=N0tFKRhWwa2hYsBY
15	M233: Thermal Engineering (TEN) -22337	C233-a	Apply laws of thermodynamics to devices based on thermodynamics	https://youtu.be/FGWmzMAFTSY
		C233-b	Use first law of thermodynamics for ideal gas in closed systems	https://youtu.be/YPJkG1Dbw9s
		C233-c	Use relevant steam boilers.	https://youtu.be/KdBjIepzW-A, https://youtu.be/493LPdMF1dE, https://youtu.be/XslK4guTK7c https://youtu.be/tGWOepiaN1o
		C233-d	Use relevant steam nozzles and turbines.	https://youtu.be/dS3GpvIl6fc
		C233-e	Use relevant steam condensers.	https://youtu.be/RNI2wMPWduE
		C233-f	Use suitable modes of heat transfer.	https://youtu.be/Me60Ti0E_rY
16	M234: Mechanical	C234-a	Draw development of lateral surface of various solids.	Development of Surface of Hollow Solids || PENTAGONAL PRISM || Zero to Hero || 2024

	Working Drawing (MWM)-22341	C234-b	Draw intersection curves of various solids.	Interpenetration of Solids_Problem 1_Horizontal Square Prism vs Vertical Square Prism
		C234-c	Use various drawing codes, conventions and symbols as per IS SP - 46.	L-02|CONVENTIONAL REPRESENTATION OF MACHINE COMPONENTS IN ENGINEERING DRAWING|MechInfoKVsir #TMC
		C234-d	Draw production drawings used to produce products.	PRODUCTION DRAWING !Surface roughness !For diploma mechanical semester 4 Students
		C234-e	Draw assembly and detailed drawings of products.	MWM_UNIT 5_DETAILS TO ASSEMBLY_LEC. 5(PART 3)_2) DRAW SECTIONAL T.V. ASSEMBLY OF LATHE TOOL POST
17	M235: Engineering Metrology (EME)-22342	C235-a	Select the relevant instrument for measurement.	https://youtu.be/HY39LA6H-Lo?si=bOekYQU-uhHh-nSB
		C235-b	Use different type of comparators.	https://youtu.be/uvuDejnkex4?si=NNy2iTbrxocZpJxW
		C235-c	Select gauges, fits and tolerance for machine component.	https://youtu.be/miKd8HOdZO8?si=LmYY6wPss3XJqWq8
		C235-d	Used relevant instrument to measure different parameter of screw thread and gear.	https://youtu.be/2cUL1JQ7v1I?si=91dzId_TTAb6jeSa
		C235-e	Used linear and angular measuring instruments.	https://youtu.be/HLdS07-Bu2c?si=OphhEA5mZMw2mGpj
		C235-f	Select the surface testing methods.	https://youtu.be/WnKXj61YKKA?si=fMhro2fSnlcQDk1H
18	M236: Mechanical Engineering Materials (MEM)-22343	C236-a	Identify properties of materials.	https://youtu.be/340MmuY_osY?si=ySWiMVb6WPi6J1PZ
		C236-b	Select relevant ferrous materials for mechanical components	https://youtu.be/KX1_NqNTIqw?si=H_tRcFSFco_DLr85
		C236-c	Select relevant Cast Iron for the engineering applications.	https://youtu.be/NYWNhAvR8ZE?si=XJ-Bif7YUKzZvwVU
		C236-d	Use nonferrous metals for mechanical components	https://youtu.be/n1shlO6TUho?si=-MWa-CcffP7PQo8V
		C236-e	Select relevant advanced materials for for mechanical components	https://youtu.be/ynR2B90UOoI?si=9HRfGMXhnGLQun86
		C236-f	Suggest relevant heat treatment process	https://youtu.be/CsFJGF3oCyc?si=Mb3xfP50FLOIRcAf
19	M241: Theory of Machines (TOM)-22438	C141-a	Identify different machine elements and mechanism	https://youtu.be/7WppBa-cLuk?si=Cpt3ZMaZMHRH6MoB
		C141-b	Apply Different methods for dynamic analysis of different mechanism	https://youtu.be/at5NmoCJv4A?si=ce0l3ea3BwQsJbPy
		C141-c	Draw cam profile suitable to various displacement diagrams	https://youtu.be/Hct6YW_8NYc?si=N3Z4yuEU3IOJpTa_

		C141-d	Select suitable power transmission system for particular application	https://youtu.be/NOczQ6OiqIk?si=33JaR79JnMDrz88Y
		C141-e	Discuss the function, operation, application and design of brake, dynamometer, clutch & bearing	https://youtu.be/9OmJB8wNVIs?si=06bwlIYruXtPVKM2
		C141-f	Illustrate the function, operation and applications of flywheel, governor and rotary balancing	https://youtu.be/n5JlGxwI_DI?si=Xyx8VsQVxDiAlMoh
20	M242: Mechanical Engineering Measurements (MEM) -22443	C242-a	Use relevant instruments for measuring displacement.	https://youtu.be/XSjphe9QOuU
		C242-b	Use relevant instruments for measuring force and torque.	https://youtu.be/Mts5Cr_BNCg
		C242-c	Use relevant pressure and temperature measuring instruments.	https://youtu.be/fmOnrEZ_z6k https://youtu.be/v7NUi88Lxi8
		C242-d	Use relevant instruments for measurement of flow.	https://youtu.be/0KIj-r6hp1g
		C242-e	Select relevant instruments for measurement of vibration and strain	https://youtu.be/3KsRjnn83T0
		C242-f	Select relevant instruments for speed and sound measurement.	https://youtu.be/1wrD4JLgb1c?si=tV8i9OULq0Y2QtO5
21	M243: Fluid Mechanics and Machinery (FMM) -22445	C243-a	Use Manometers and Bourdon gauge to measure pressure.	https://www.youtube.com/watch?v=XdXWUaZoREY&t=7s
		C243-b	Use flow meters to measure the rate of flow.	https://youtu.be/0KIj-r6hp1g?si=HZ3GCxkSUMk7eRvs
		C243-c	Maintain flow through pipes.	https://youtu.be/wXeAmeTn-QU?si=-gYpHcPAUssMHjHy
		C243-d	Maintain the jet impact on various types of vanes for optimum efficiency.	https://youtu.be/O-nISjJ1xoY?si=LH-EXI8AqI6zIwdw
		C243-e	Maintain hydraulic turbines.	https://youtu.be/BZ9WHt-CSv0?si=SNdz83KrYxh5dd0f
		C243-f	Maintain hydraulic pumps.	https://youtu.be/dxDEhpShzIk?si=tqVdIeD2rtdlgr4L
22	M244: Manufacturing Processes (MPR) -22446	C244-a	Produce jobs using lathe and drilling machines.	https://youtu.be/km6ickQglVY https://youtu.be/sG6GCfX7L3c https://youtu.be/GHukUKMLDMY
		C244-b	Produce jobs using shaping and slotting operations.	https://youtu.be/lyRtPFJj8vI https://youtu.be/L0BT2OOSNjI
		C244-c	Prepare product using different casting processes.	https://youtu.be/DuOMrOqs86s https://youtu.be/EIBDp6U8bHo

		C244-d	Prepare products using different forming processes.	https://youtu.be/Um_g8sQ_p3Y
		C244-e	Use joining processes to produce jobs.	https://youtu.be/ZLlwfXSXEVc?list=PLSGws_74K01_zyzpQkNtm-6ickGhCwi-4
23	M245: Environmental Studies (EVS) -22447	C245-a	Develop public awareness about the environment.	https://youtu.be/8u-SrHapsLs
		C245-b	Select alternative energy resources for engineering practice.	https://youtu.be/mh51mAUexK4?list=PLwdnzlV3ogoXUifhvYB65lLJCZ74o_fAk
		C245-c	Conserve ecosystem and biodiversity	https://youtu.be/GK_vRtHJZu4
		C245-d	Apply techniques to reduce environmental pollution.	https://youtu.be/DsTmKa6sKa0
		C245-e	Manage social issues and environmental ethics as lifelong learning	https://youtu.be/jQtJVihXuS0
24	M246: Computer Aided Drafting (CAD) -22042	C246-a	Draw the file management in a CAD software.	https://youtu.be/mHo83dfDWQ8 https://youtu.be/9nO6oEhWXgY
		C246-b	Draw complex 2D geometric figures using CAD software.	https://youtu.be/E8ilSXw5zXM?list=PLLE0YYaxTcEJuAS3aON2Ui-GsMVEaMVyv
		C246-c	Modify complex 2D geometric figures using CAD software.	https://youtu.be/mxtKebeYSok
		C246-d	Use software to dimensions and write text on existing 2D entities.	https://youtu.be/AJwVjJunFMM
		C246e	Use software to plot existing drawings with desired plot parameters.	https://youtu.be/is-LLHtEpVE
		C246-f	Create isometric drawing using CAD software.	https://youtu.be/jJQuQN-Ve4s
		C246-g	Use layers and blocks to create digital drawing using relevant software.	https://youtu.be/IUHMFtBZzyQ
25	M247: Fundamentals of Mechatronics (FOM) -22048	C247-a	Identify different instruments sensor actuator microprocessor software and mechanical components in mechatronics based systems	https://youtu.be/IIf7zH5cIX8?list=PL91lquAVmESBqKLU0Tn5gRVXVyW5KLgCa
		C247-b	Use sensor for different mechatronics applications	https://youtu.be/XI49uFm5HRE
		C247-c	Use transducers for different mechatronics based applications	https://youtu.be/zxYeJW9v6OU?list=PLwymdQ84KI-w5DwDzqO_4hWsB2Jc4_eBy
		C247-d	Use actuator for various mechatronics based application	https://youtu.be/gokPA6OWaZ4

		C247-e	Program PLC for various applications	https://youtu.be/ceCQQdVgiEY?list=PL3y71jAPOdZButHZVBAqjxt0NUUyXbN_K
		C247-f	Use microprocessor and microcontroller for various mechatronics based applications.	https://youtu.be/dcNk0urQsQM
26	M351: Management (MAN) - t22509	C351-a	Use basic management principles to execute daily activities.	https://drive.google.com/file/d/1KLZc6eRUnalFj_xRzr5e5j76wDsybim7/view
		C351-b	Use principles of planning and organising for accomplishment of tasks.	https://drive.google.com/file/d/1_cph1ncqp8b8XyN5lln57yFCj8Ulc3xs/view
		C351-c	Use principles of directing and controlling for implementing the plans.	https://drive.google.com/file/d/1Q5wjv2M8yilVISc7kTIBcUzfy75EqwyQ/view
		C351-d	Apply principles of safety management in all activities.	https://drive.google.com/file/d/1obY9T8H62TsQvPXOtzjXLU48NurPNb94/view
		C351-e	Understand various provisions of industrial Acts	https://drive.google.com/file/d/1wJ6f2hT0EXDNRdzrFsmvKqvDvwsejoqn/view
27	M352: Power Engineering and Refrigeration (PER)-22562	C352-a	Identify different components of I.C.Engines and its auxiliaries.	https://youtu.be/fw8Jfoif1BM
		C352-b	Test the performance of I.C.Engines.	https://youtu.be/kbDsjcJc95U
		C352-c	Maintain Reciprocating air compressor .	https://youtu.be/1KGgQl1TYgE
		C352-d	Identify different components of gas turbines and jet engines.	https://youtu.be/BodpRrn0iOI https://youtu.be/amvrL0FU1ng
		C352-e	Test the performance of Refrigeration and air-conditioning systems.	https://youtu.be/PjcdqAkP0UA https://youtu.be/gVLhrLTF878
28	M353: Advanced Manufacturing Processes (AMP) - 22563	C314-a	Maintain the non conventional machining process to produce Complex and hard to machine component	https://youtu.be/HkUFcDRP6RM https://youtu.be/kh4DSOtef4k https://youtu.be/b1nX7WVIN7U https://youtu.be/fQv1FoP7vq4 https://youtu.be/tTnXn498F90
		C314-b	Produce components using milling machine	https://youtu.be/aeOaAZRwpfY
		C314-c	Choose relevant machining process to produce gears	https://youtu.be/B0XSsa79Y1w
		C314-d	Maintain CNC machine to produce components effectively	https://youtu.be/FNYEXjRmDtI
		C314-e	Prepare CNC part programs for simple components	https://youtu.be/ZgWYoFWTKJc

		C314-f	Maintain the functioning of automated equipment	https://youtu.be/uEhuxYXPTOE
29	M354: Elements of Machine Design (EMD)-22564	C354-a	Select suitable materials for designing machine elements.	https://youtu.be/ynR2B90UOoI
		C354-b	Design joints and levers for various applications.	https://youtu.be/Ih6h_c2zkh0
		C354-c	Design the power transmission elements like shafts, keys and couplings.	https://youtu.be/3Hjmile-cNU?list=PL4K9r9dYCOoo-snj8qm-zNnHVjjn5E5Gk
		C354-d	Recommend the power screws and suitable fasteners for different applications.	https://youtu.be/70hESLwUhME?si=fNqUvA8rZprMZc9D
		C354-e	Choose springs for various applications.	https://youtu.be/CaRo8y7qvfE?si=STAHxeMn43nUhJZO
		C354-f	Select standard components with their specifications from the manufacturer's catalogue.	https://youtu.be/Gp6p1sY5qgE?si=krpqFxAKE_lpRUCm
30	M355: Power Plant Engineering (PPE)-22566	C355-a	Identify various components of Hydro, Steam, Gas , Diesel power plant.	https://youtu.be/j_JL-Z__h6Q https://youtu.be/HGVDu1z5YQ8 https://youtu.be/622o4WeZ6HA
		C355-b	Select a high pressure Boiler for the power generation capacity of plants.	https://youtu.be/8kYUUN78clY
		C355-c	Identify components of steam , Diesel and Gas turbine power plants.	https://youtu.be/j_JL-Z__h6Q https://youtu.be/HGVDu1z5YQ8 https://youtu.be/622o4WeZ6HA
		C355-d	Measure waste heat recovery in a typical thermal power plant.	https://youtu.be/R8tECZvCph8
		C355-e	Identify components of Nuclear Power Plants .	https://youtu.be/k2rYDwcB4SA
		C355-f	Estimate economic parameters of power plants.	https://youtu.be/y7m7VFC9fww
31	M356: Solid Modelling & Additive Manufacturing	C356-a	Prepare 2D drawing using sketcher workbench of Any parametric CAD software	https://youtu.be/ont1ubQbV1M?si=951JoF2bqREV2K3l
		C356-b	Generate 3D solid models from 2D sketch using part workbench of Any parametric CAD software.	https://youtu.be/hKIaQZlua6A?si=y1VNmJ1GOUvOXnkT
		C356-c	Prepare assembly of part models using assembly	https://youtu.be/MjX1ZGjt2o8?si=hxB0QX3zkBbm_4uY

	(SMA) -22053		workbench of Any parametric CAD software.	
		C356-d	Generate orthographic 3D solid models/ assemblies using drafting workbench of Any parametric CAD software	https://youtu.be/Lph_Xszkaow?si=PgZ7I9dNikEggsUB
		C356-e	Plot a drawing for given part model / assembly	https://youtu.be/dKNnTxwSS-Q?si=FR4aqqwBq1rWTG8i
		C356-f	Print components using 3D Printers/ Rapid prototyping machine prototyping machine	https://youtu.be/q_ByyRWxUXM?si=9zxWJVzdzs2iOQSb
32	M357: Industrial Training (ITR)-22057	C357-a	Communicate effectively (verbal as well as written) the work carried out.	https://youtu.be/QGHBq5OEsBM?si=rCQjpaevgso_Ga0v
		C357-b	Prepare and present the report of the work carried out.	https://youtu.be/T3CZe5Rj_bI?si=K-GKHnGeT5YTnqKX
		C357-c	Exercise time management and safety in the work environment.	https://youtu.be/vhGG2XDwAuE?si=rxr080cyjKQ0E9z3
		C357-d	Working in a team.	https://youtu.be/92ht92Do-tk?si=XW2sYC7Pvb5a0Dn_
		C357-e	Demonstrate various quality assurance	https://youtu.be/4neq2L6yDRI?si=oh05pBTdmhnLDwMj
		C357-f	Exhibit the work carried out	https://youtu.be/L6QMlnTNCPA?si=JZOkbYD5mWRYt323
33	M358: Capstone Project Planning (CPP)-22058	C358-a	Write the problem/task specifications in existing systems related to the occupation	https://youtu.be/8EBWxW5Cn1g?si=Qko-pz0KfK4Q2gPi
		C358-b	Select, collect and use required information /knowledge to solve the problem/complete the task.	https://youtu.be/q17s84ADGfA?si=4C5YLvThtSNNfmk8
		C358-c	Logically choose relevant possible solutions.	https://youtu.be/Dpfupv9XSkU?si=2rfPyfA0My09PiiA
		C358-d	Consider the ethical issues related to the project if any.	https://youtu.be/mtLPd2u4DiA?si=y224D4SilFaCzwye
		C358-e	Assess the impact of the project on society.	https://youtu.be/1gDOCCy3foE?si=FWQsqH5Ps1csOwkJ
		C358-f	Prepare project proposals with an action plan and time duration scientifically before beginning the project.	https://youtu.be/jsGBuu88WE0?si=eukSEYhCl8_FHVhV
		C358-g	Communicate effectively and confidently as a member and leader of a team.	https://youtu.be/em6EJ7-MFcw?si=b7eSr3njFAwmNXax

34	M361: Emerging Trends in Mechanical Engineering (ETM) -22652	C361-a	Identify different new systems available in Automobile	https://youtu.be/EgF01aSQyno?si=NR0kB5Hd-kVYN4BG
		C361-b	Apply heat engineering principles in process boilers and waste heat recovery systems used in process industry.	https://youtu.be/bo5lL_K-zaQ?si=JvjrLPLVab8jDMv7
		C361-c	Cite examples in modern manufacturing technology in industry.	https://youtu.be/-j1lWspIo4c?si=mvROLeQDDi-XyJAV
		C361-d	Use different standards for energy management and Audit of a given system.	https://youtu.be/rbgw8NhNd_M?si=IZBxVFVN7E9r87KC
		C361-e	Select recent agricultural equipment for pre and post harvesting.	https://youtu.be/hzuJwWKQS8Y?si=OohcubmIHdgrvbVy
35	M362: Industrial hydraulics and Pneumatics (IHP)-22655	C362-a	Identify various components of hydraulic & pneumatic systems.	https://www.youtube.com/watch?v=xsGxOfwWm_E https://www.youtube.com/watch?v=RMfcGWViLn0 ● *Pneumatic and Hydraulic Systems - An Introduction* This video provides an overview of the components and functions of pneumatic and hydraulic systems. Watch here ● *Introduction to Pneumatic Systems (Part 1 of 2)* An introductory lesson comparing pneumatic and hydraulic systems. Watch here
		C362-b	Select pump and actuators for given fluid operating system.	a) Hydraulic Pumps: https://en.wikipedia.org/wiki/Hydraulic_pump b) Hydraulic Pumps: www.hydraulicspneumatics.com/.../HydraulicPumpsM/.../TechZone-HydraulicPumps. c) Animation of Hydraulic pumps: https://www.youtube.com/watch?v=Qy1iV6EzNHg

				d) Animation of Hydraulic pumps: https://www.youtube.com/watch?v=pWuxYnqYDnk e) Eaton Pump assembly: https://www.youtube.com/watch?v=sEVTIRYHoGg ● *Fundamentals of Hydraulics, Pneumatics, and Actuators* This video explains the basics of fluid power, including pumps and actuators. Watch here ● *Hydraulic and Pneumatic Systems - YouTube Channel* A channel dedicated to the workings of hydraulic, pneumatic, and mechanical devices, including pumps and actuators. Explore the channel
		C362-c	Select appropriate control valves for a given fluid operated system.	a) Video lectures of IIT Faculty: http://nptel.ac.in/courses/112105047/ b) Lecture series and notes by IIT faculty: http://nptel.ac.in/courses/112106175/ c) Pneumatic control valves animation: https://www.youtube.com/watch?v=XAItnsUcES0 d) Control valve symbol generation: https://www.youtube.com/watch?v=yIot4shcOkE e) Animation of D.C Valve: https://www.youtube.com/watch?v=jsMJbJQkGTs f) Animation of 4/2,4/3 D.C Valves: https://www.youtube.com/watch?v=CQPwvWXbV3w ● *Hydraulic and Pneumatic Systems - YouTube Channel* This channel offers videos on various

				components, including control valves. Explore the channel
		C363-d	Select compressor and appropriate accessories for given fluid operated	https://www.youtube.com/watch?v=Wb061mWKvtk https://www.youtube.com/watch?v=6dyBENhSwDw ● *How an Industrial Pneumatic System Works and the Five Components* Learn about the typical components of a pneumatic system, including compressors. Watch here
		C363-e	Develop different hydraulic circuits for given simple application	a) Animation of Hydraulic cylinder: https://www.youtube.com/watch?v=bovfDsAYSbc Telescopic cylinder animation: https://www.youtube.com/watch?v=icaqvfAtccY ● *Hydraulic and Pneumatic Systems - YouTube Channel* This channel provides insights into hydraulic circuits and their applications. Explore the channel
		C362-f	Develop different pneumatic circuits for given simple application	a) a) Pneumatic cylinder: https://www.youtube.com/watch?v=MmYpzgh6Gok b) Speed control hydraulic circuit: https://www.youtube.com/watch?v=4eCuPVxezzY ● *Pneumatic and Hydraulic Systems - YouTube Playlist* A playlist covering various aspects of pneumatic systems, including circuit design. Watch here
36	M363: Automobile Engineering (AEN)-22656	C363-a	Prepare vehicle layout with chassis specification.	https://auto.howstuffworks.com/automobile.htm
		C363-b	Interpret power flow diagrams of Transmission Systems	https://youtu.be/o1ED4FQjDGk?si=0dPaptAJF0afavzK https://youtu.be/devo3kdSPQY?si=hBYgB-3y3-dgMrtX https://www.youtube.com/watch?v=-S0TwGUEe7Y https://youtu.be/y8QaD8NJLxM?si=fAn3WzuO1pJWUF4B

				https://www.youtube.com/watch?v=bfaEV7D4Msk https://www.youtube.com/watch?v=C5UJ2H-JSs0 https://www.youtube.com/watch?v=mQn-UjkqNq4
		C363-c	Select suitable breaking and steering systems for different applications.	https://youtu.be/LY_0REE-g0c?si=v18IF0NHdqpKhcQh https://youtu.be/3A4SwDc8-9c?si=2EmAH3MfPsHlHPna https://youtu.be/w2iqAyMY25s?si=AC_EA88i9PVu1uWj
		C363-d	Select suspension system for different application	https://youtu.be/UhlPqqDUmUM?si=rQTvD86W25_J9G9k https://youtu.be/iMqE-NCrWIg?si=oXaVYEJHyIigGKYz https://youtu.be/XTM4Mqa617o?si=7c9WZTgOsXhgGdDI https://youtu.be/Fb5tpM6IsJs?si=znTSbPnBm0iLuiUr
		C363-e	Prepare simple electrical electronic circuit for automobile systems	https://youtu.be/TqQE0xkCJ8c?si=T-MZoDVfI4xfaT6o https://youtu.be/OMLSNwQiiKg?si=qBTOzSdJeM9ZLBpy
		C363-f	Select Service tools for relevant service operation in automobile shops	https://www.youtube.com/watch?v=0lD9TG6RLRc
37	M364: Industrial Engineering & Quality Control (IEQ)-22657	C364-a	Apply work study techniques to optimize manufacturing processes.	https://youtu.be/boyHAXgedCo?si=tQ02NHZ8G1EMw42J
		C364-b	Prepare the detailed sequence of operations for manufacturing of components.	https://youtu.be/n6c6hjptUbg?si=2BMhQMhYLfsvdi-M
		C364-c	Apply Ergonomic principle for designing simple mechanical components.	https://youtu.be/5xPV8xtQKoI?si=MDva0S0F2KkHMLYC
		C364-d	Interpret the data obtained from the different quality control processes.	https://youtu.be/yuH35ottILU?si=tKFJqveAz8GEmTNk
		C364-e	Interpret control charts for variable and attribute data	https://youtu.be/iOJDBpOa3Ko?si=qIz0cfnUmClYlZ6j
38	M3651 : Refrigeration and Air Conditioning (RAC)-22660	C3651-a	Use a refrigeration system for a given application.	https://youtu.be/IpQu0-Evj0I?si=8fPMF7PUInnFs8Ig
		C3651-b	Use relevant refrigerants for different applications.	https://youtu.be/AnzBUdnz-lY?si=D2K7ESZhHS3RwrRu
		C3651-c	Select different refrigerant components for given refrigeration systems.	https://youtu.be/U7yke2EKCxM?si=d2oMmLHKo8PQNWsz
		C3651-d	Select different air conditioning components for given air conditioning systems.	https://youtu.be/kaVoLEBebjA?si=lgB18EXF_2_dKyKh

		C3651-e	Determine cooling loads for Air conditioning systems.	https://youtu.be/YQcexJjZVa4?si=0RkWJ83bFbys7MFl
		C3651-f	Select relevant tools for maintaining the air conditioning system.	https://youtu.be/tRB9gyXitGk?si=Jo0uvXrfsbQt71VX
39	M3652: Renewable Energy Technologies (RET) -22661	C3652-a	Maintain mechanical components of the solar thermal system.	Savosolar - Solar Thermal Systems
		C3652-b	Maintain mechanical components of solar PV systems.	How do Solar cells work? | #PNjunction solar cell | #solarenergy Explain
		C3652-c	Maintain mechanical components of wind turbines.	How do wind turbines work? - Rebecca J. Barthelmie and Sara C. Pryor
		C3652-d	Maintain mechanical components of micro hydro turbines.	awesome micro hydro turbine generator for free electricity | clean energy | free energy
		C3652-e	Maintain mechanical components of biogas plants.	https://youtu.be/5RswjCWaR6I?si=ealugodOXEIspVF4
		C3652-f	Maintain mechanical components of hybrid renewable energy systems.	Smart Hybrid Power Solutions
40	M366: Entrepreneurship Development (EDE)-22032	C366-a	Identify your entrepreneurial traits.	https://youtu.be/-sQeREfZY-8?si=3JjxCekqK8lau0zL
		C366-b	Identify the business opportunities that suit you.	https://youtu.be/OkNpsVMT84w?si=oAL-A8LV0MPpeEc7
		C366-c	Use the support systems to zero down to your business ideas.	https://youtu.be/kAAO-qO2kFg?si=3ZfTrdQg-eoCmwlu
		C366-d	Develop comprehensive business plans.	https://youtu.be/n6ecdYd8T6o?si=XOwLiDaIxTVdWAQJ
		C366-e	Prepare plans to manage the enterprise effectively.	https://youtu.be/81o65vbtGKo?si=69MuNWI2flqr91EF
41	E367: Capstone Project - Execution & Report Writing (CPE)-22060	C367-a	Implement the planned activity individually and/or as team.	https://youtu.be/C4Ibi-srgEc?si=JMNuwg0Jt9Nx3QaI
		C367-b	Select, collect and use required information/knowledge to solve the identified problem.	https://youtu.be/lqqJ5BmXzB0?si=L1GegjsrQKaCZ7Jw
		C367-c	Take appropriate decisions bases on collected and analyzed information.	https://youtu.be/42QQ75wJaq4?si=_kG8IVvU8_85u7NF
		C367-d	Ensure quality in the product.	https://youtu.be/u2TTksWl6Tw?si=FiYQ693x78vM8gyp
		C367-e	Incorporate energy and environment conservation principles.	https://youtu.be/cA0G-Lp6Prw?si=-iOTmJhY5VfT52_4
		C367-f	Consider the ethical issues related to the project.	https://youtu.be/mtLPd2u4DiA?si=OmFZr0P8Gxgq6W19

		C367-g	Assess the impact of the project on society.	https://youtu.be/1gDOCCy3foE?si=o7oANbnRHduKISWd
		C367-h	Communicate effectively and confidently as a member and leader of team.	https://youtu.be/etlI6J5MG0w?si=dMHIFUHWZe-3k_Ae
		C367-i	Prerpare project report after performing due plagiarism check using appropriate tools.	https://youtu.be/BXBNRVL5bI0?si=6GobpU-dov7tD___