राजस्थान सरकार

(ई-मेल द्वारा)

प्राविधिक शिक्षा मण्डल,राजस्थान

डब्ल्यू-6 रेजीडेन्सी रोड, जोधपुर
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क्रमांकः एफ 4(160)/प्राशिमं/पाविप्र/2020-21/ दिनांक:

प्रधानाचार्य,
समस्त राजकीय एवं निजी पॉलिटेक्निक महाविद्यालय

विषयः- पॉलिटेक्निक पाठ्यक्रम में नवीनतम तकनीक के प्रायोगिक विषयों के समावेश हेतु.
सन्दर्भः- मंडल का पत्रांक एफ 4(160)/ प्राशिमं/ पाविप्र/2020-21/ 4322 दिनांक 16.08.2024 एवं
एफ 4(160)/ प्राशिमं/ पाविप्र/ 2020-21/4936 दिनांक 09.09.2024.

उपरोक्त विषयान्तर्गत एवं संदर्भित पत्रों के सम्बन्ध में लेख है कि निर्देशानुसार पॉलिटेक्निक पाठ्यक्रम में नवीनतम तकनीक के प्रायोगिक विषयों का समावेश करने हेतु दिनांक 10/09/2024 को पाठ्यचर्या विकास प्रकोष्ठ में कार्यशाला का आयोजन किया गया.

कार्यशाला में प्राप्त सुझावों एवं नवीन शिक्षा नीति में वर्णित बिन्दुओं के अनुसार पाठ्यक्रम को अधिक रोजगारोन्मुखी बनाने के उद्देश्य से प्राविधिक शिक्षा मंडल के पाठ्यक्रम में संलग्न सूची अनुसार नवीनतम तकनीक के प्रयोगों का आगामी शैक्षणिक सत्र (2025-26) से समावेश किया जाना है.

आगामी शैक्षणिक सत्र से उक्त नवीनतम प्रयोगों का समावेश करते हुए अध्यापन एवं प्रायोगिक कार्य पूर्ण किया जाना सुनिश्चित करावें.

संलग्नः- उपरोक्तानुसार.

अध्यक्ष/ निदेशक

क्रमांकः एफ 4(160)/प्राशिमं/पाविप्र/2020-21/ 5155 दिनांक: 17/09/24

प्रतिलिपि निम्न को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित-

1. श्रीमान संयुक्त सचिव, तकनीकी शिक्षा विभाग, जयपुर को उनके पत्रांक F.12(01)TE/2009-I-Part 01965 दिनांक 22.08.2024 के क्रम में. (द्वारा ई-मेल)
2. संयुक्त निदेशक ई-2, प्राविधिक शिक्षा निदेशालय, राजस्थान, जोधपुर
3. संयुक्त निदेशक (रजिस्ट्रार), प्राविधिक शिक्षा मंडल, राजस्थान, जोधपुर
4. संयुक्त निदेशक (गोपनीय), प्राविधिक शिक्षा मंडल, राजस्थान, जोधपुर
5. विभागाध्यक्ष (गोपनीय), प्राविधिक शिक्षा मंडल, राजस्थान, जोधपुर
6. श्री सतीश नाथ, नोडल अधिकारी को मंडल की वेबसाइट पर अपलोड करवाना सुनिश्चित करवाने हेतु.

अध्यक्ष/ निदेशक

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Introduction of Latest Topics in Syllabus from 2025-26

Civil Engineering			
S. No.	**Subject Code & Name**	**Latest Practical Added**	**Equipment Needed**
1	CE-4009, Advanced Surveying Lab	Using Drone based Survey System (DGCA approved) to perform surveying.	DGCA Approved Drone System for Surveying.
2	CE-4009, Advanced Surveying Lab	Use of DGPS for Survey Work.	DGPS Equipment.
3	CE-4009, Advanced Surveying Lab	Use Total Station with Integrated Software for accurate measuring.	Latest Total station with software (Integration of data processing allows seamless transfer and analysis of survey data).
4	CE-4010 Building Planning & Drawing Lab	Creating 3D Models using 3DS Max.	3DS Max Software and Computers with Graphics card which can run 3DS Max Software.
5	CE-6003 Public Health Engineering Lab	Introduction of biotechnology, use of microalgae in the treatment of wastewater by removing nutrients and pollutants.	Cultured Microalgae and water filtering equipment.
6	CE-6003 Public Health Engineering Lab	Measuring particulate matter and other pollutants for air quality monitoring.	Aerosol photometers.
7	CE-4009, Advanced Surveying Lab	Use of GNSS for surveying	GNSS Survey Equipment

Introduction of Latest Topics in Syllabus from 2025-26

Incorporating modern technologies like drone-based surveying, DGPS (Differential Global Positioning System), Total Station, and 3ds Max into the curriculum will significantly enhance diploma students' employability in today’s competitive job market. Drone-based surveying allows for accurate, efficient data collection over large areas, a skill highly sought after in construction. DGPS ensures precision in fieldwork, which is critical in industries like civil engineering and geospatial analysis. The use of Total Station for land surveying equips students with advanced technical expertise required in various sectors. Meanwhile, proficiency in 3ds Max enables students to create detailed 3D models and visualizations, aligning their skills with current architectural, design, and construction industry demands. These technologies not only make students more versatile and job-ready but also open opportunities in emerging fields like urban planning, GIS (Geographical Information Systems), and remote sensing.

Introduction of Latest Topics in Syllabus from 2025-26

Electronics Engineering			
S. No.	**Subject Code & Name**	**Latest Practical Added**	**Equipment Needed**
1	EL 3007 Electronic Devices & Circuit Lab	Simulation of half wave, full wave and bridge rectifier using simulation tool.	TinkerCAD simulation software.
2.	EL 40082 Simulation Software Lab	Design of circuit PCB using PCB Prototype Machine.	PCB Prototype Machine.
3.	EL 5005 Embedded Systems Lab	Using a 3D printing machine to build customized electronic accessories. Assembling and programming of Drone.	3D Printer. Drone assembly and demonstration kit.
4	EL 50071 Industrial Automation Lab	Introduction to robotics and creation of simple line follower robot using arduino.	Robot and arduino kit.

Incorporating hands-on experience with PCB Prototype machines, TinkerCAD simulation software, and drone assembly into the electronics diploma curriculum will greatly enhance students' employability in today's evolving tech-driven market. PCB Prototype machines allow students to design and fabricate circuit boards in-house, giving them practical skills in electronics manufacturing and rapid prototyping, which are highly valued in industries such as consumer electronics, automotive, and telecommunications. TinkerCAD simulation software enables students to develop and test electronic circuits in a virtual environment, fostering a deep understanding of design and troubleshooting without the need for physical components.. By mastering these tools and technologies, students become versatile, innovative, and ready to meet the demands of industries requiring electronics expertise in prototyping, product development, and automation.

Introduction of Latest Topics in Syllabus from 2025-26

Electrical Engineering			
S. No.	**Subject Code & Name**	**Latest Practical Added**	**Equipment Needed**
1	EE-4007 Electric Power Transmission and Distribution Lab	Machine & Cable Testing.	Testing panel for machine and cable capacity testing with safety features.
2	EE-3009 Electric Motors and Transformers Lab	SCADA based machine Lab & PLC.	SCADA based PLC kit for machine lab for demonstration and study.
3	EE-3009 Electric Motors and Transformers Lab	Open Electrical Machine Lab.	Complete kit of Open Electrical Machine Lab for demonstration and practice.

Integrating SCADA-based PLC kits, machine & cable testing, and open electrical machine labs into the electrical diploma curriculum will significantly boost students' employability by aligning their skills with the demands of modern industries. SCADA (Supervisory Control and Data Acquisition) systems, combined with PLC (Programmable Logic Controllers), are widely used for automation in industries such as manufacturing, energy, and utilities. Hands-on experience with these systems equips students with the knowledge to design, operate, and troubleshoot automation processes, which is highly valued in the job market. Machine and cable testing introduces students to essential diagnostic techniques for ensuring the safety and efficiency of electrical systems, which is critical for industries involved in power generation, transmission, and industrial maintenance.. These skills make diploma graduates highly employable in sectors such as automation, power distribution, manufacturing, and maintenance.

Introduction of Latest Topics in Syllabus from 2025-26

Computer Engineering			
S. No.	**Subject Code & Name**	**Latest Practical Added**	**Equipment Needed**
1	2007 Introduction to IT System Lab	Application of Artificial Intelligence Tools, use AI to create documents, spreadsheets, presentations and web pages.	Open access online Artificial Intelligence tools.
2	CS 60021 Multimedia Technology Lab	Introduction to Android Programming (Mobile App Development)	Android Development Integrated Development System Software.
3	CS 3007 Scripting Language (Python) Lab	Use of Django to develop python projects.	Django software.
4	CS 50051 Data Warehousing & Mining Lab	Use of Power BI tool for data analysis and visualization.	Power BI software tool.
5	CS 50051 Data Warehousing & Mining Lab	Use of open source big data analysis tools for demonstration of customer forecasting in a store.	Open source big data analysis tool.
6	CS 50052 Fundamentals of AI Lab	Use of open source machine learning tools for demonstration of automatic object identifiers.	Open source machine learning software.
7	CS 3006 Computer Programming Lab	Use of Visual programming editor environment.	Visual Programming editor software- Visual Studio.

By mastering the latest technologies, Computer Science diploma students will be well-prepared for careers in app development, web development, data analysis, and artificial intelligence, making them more competitive in the job market.

Introduction of Latest Topics in Syllabus from 2025-26

Mechanical Engineering			
S. No.	**Subject Code & Name**	**Latest Practical Added**	**Equipment Needed**
1	ME 5006 CAD/CAM Lab	Use of additive manufacturing using 3D printing.	Polymer & Metal 3D printer.
2	ME 5006 CAD/CAM Lab	Application of CNC based LASER engraving for making artistic & creative designs used in handicraft industries.	CNC laser engraving machine.
3	ME 5006 CAD/CAM Lab	Use a simulator for Robots having more than 3 axes.	Simulation software for robotics with high performance computer systems.
4	ME 5006 CAD/CAM Lab	Use of Simulation software for advanced CNC machines having both lathe and milling in one machine.	Simulation software for CNC lathe and milling, CNC lathe trainer, CNC VMC (Vertical Milling Center)
5	ME 5007 Manufacturing Engineering-II Lab	Use of a plastic molding machine to create different objects.	Plastic molding machine
6	ME 5007 Manufacturing Engineering-II Lab	Use of Virtual Reality to demonstrate manufacturing processes.	Virtual Reality (VR) set.
7	ME 4008 Thermal Engineering-II Lab	Practice of Maintenance of EV working model of EV.	Complete EV Test Bench, Cut section working model of 4-wheel EV chassis, complete EV tool kit
8	ME 4007 Measurement & Metrology Lab	Use of 3D scanner for measurement and application of microscopic surface profiling.	3D Scanner, Scanning Electron Microscope for surface profile
9	ME 4008 Thermal Engineering-II Lab	Assembling and installation of a solar panel with an inverter.	Solar Panel, Inverters, Assembly & Installation kit

Introduction of Latest Topics in Syllabus from 2025-26

10	ME 4008 Thermal Engineering-II Lab	Demonstrate the superior thermal conductivity of carbon Nanotubes compared to regular materials by observing heat transfer.	Metal plates (e.g., aluminum or copper), Carbon Nanotube powder

Incorporating technologies like 3D printing, CNC simulation software, plastic molding machines, EV (Electric Vehicle) repairing and solar panel assembly into the mechanical diploma curriculum will significantly enhance students' employability by aligning their skills with emerging industry demands. 3D printing offers hands-on experience with rapid prototyping, a key technology in manufacturing, automotive, and aerospace sectors. CNC simulation software enables students to master precision machining and automated production processes, making them job-ready for advanced manufacturing roles. Plastic molding machine experience equips students with knowledge in mass production techniques, especially for industries like consumer goods and automotive parts. EV repairing skills address the growing demand in the electric vehicle industry, preparing students for roles in EV maintenance and servicing. Finally, learning solar panel assembly aligns with the global shift toward renewable energy, offering opportunities in the booming solar energy sector. These practical, future-ready skills will make mechanical diploma graduates highly competitive in a wide range of modern industries.