Sultanate of Oman
Ministry of Manpower
Directorate General of Technological Education

سلطنة عمان
وزارة القوى العاملة
المديرية العامة للتعليم التقني

الكلية التقنية بصلالة
Salalah College of Technology

Engineering Department

Electrical Section

Diploma I year level in Engineering

CODE	COURSE TITLE AND DESCRIPTION	CREDIT HOURS
ENTW1100	**Technical Writing I**: This course will teach, students basic academic writing skills to enable them to communicate effectively and clearly. They will learn to analyze required readings and discover ideas that they can use for writing assignments and projects.	3
ENTW1200	**Technical Writing II:** This course is a continuation of Technical Writing I. It aims at enabling the students to communicate effectively and appropriately in writing, based on real life situations. They will sue English for academic purpose and expository writing, as well as develop their writing skills in an integrated manner, making use of the listening, reading and speaking skills.	3
MATH1102	**PureMath**: The Pure Mathematics course is the second in the series of two courses designed to bridge the gap in mathematical skills between secondary school and higher education. This specific course prepares students who are going for engineering, science, and technology oriented specializations to learn and solve mathematical problems in English and enables them to meet the prescribed learning outcomes. It also prepares students to acquire necessary knowledge and skills for further studies in their specializations. Demonstrate understanding of the definition of a function and its graph., polynomial functions, exponential and logarithmic functions and solve problems arising from real life applications, inverse relationship between exponents and logarithms functions and use this relationship to solve related problems, the trigonometric functions and their inverses, an understanding of trigonometric identities, the law of sines and cosines to solve a triangle and real life problems, the conic sections and understand in particular the parabola, ellipse and hyperbola and construct their standard equations AND basic concepts of descriptive statistics, mean, median, and mode and summarize data into tables and simple graphs. **Course Pre-requisite- FPMT 0101 Basic Mathematics**	3
MATH1200	**Calculus I:** This course is to equip the student with the basic techniques of calculus to solve problems in engineering and other applied fields. This course will enable the student to, grasp the ideas of limits and continues functions, Conceive the concepts of derivatives, Learn how to find anti-derivatives, Understand the techniques of applying derivatives and anti-derivatives to solve problems in realistic situation. **The prerequisite for this course is PureMath (MATH1102).**	3
PHYS1100	**Physics 1 (Engineering)**: This course is a vital subject for engineers. This course introduces the basic concepts of Physics like measurements of physical quantities with their units,	3

	Mechanics, Circular motion, Oscillation, Gravitation, Electrostatics and Electrical circuits. These concepts will enable the students to understand the world around him; applications used in everyday life and relate the physics to other sciences and advancement of technology. **The prerequisite for this course is PureMath (MATH1102).**	
PHYS1211	**Physics 2 (Engineering):** This course is a continuation of physics-I. This course deals about Magnetism, Electrostatics, Electromagnetic induction, Electromagnetic waves, Optics, Heat and Modern Physics. These concepts will enable the students to understand the world around him, applications used in everyday life and relate the physics to other sciences and advancement of technology. **The prerequisite for this course is Physics-I (PHYS1100).**	3
CHEM1100	**Fundamentals of Chemistry (Engineering):** This course introduce the students to the basic concepts of chemistry, especially aspects, which form an essential, background for those majoring in engineering. This course covers topics like chemical calculations, properties and reactions of acids and bases, structure of atom and redox reactions. This course enables the student to apply the laws of electrolysis and have a general understanding of the manufacture, composition of paints.	3
EEPW1240	**Engineering Workshop:** This course aims to equip the student with practical knowledge of elementary engineering tasks and provide them with progressive hands-on structured experience of environment and practices related to engineering. It also enables the students understanding of safety and its importance for the protection of personnel and equipment/machinery. It provides hands on experience on how to use various measuring tools, instruments, equipments/machinery available in mechanical, electrical and construction work shops.	3
CECE1100	**Engineering Graphics:** This course provides the students with the basic knowledge of engineering drawing which enables him/her to produce high quality engineering drawings. It consists of two parts namely Manual Drawing and Computer Aided Design. Manual drawing enables them to understand the concept of engineering drawing and how to produce technical drawing using drawing instruments. Computer aided drawing explores the use of drafting software like AutoCAD package to produce high quality technical drawing with full part details.	3
ITAD1100	**Advance IT Skills** This course aims to provide students with a breadth of IT Skills in applications that are useful for students from various non-IT fields of specialization. The course builds on the skills acquired in the IT foundation course to train students on important computer tools and software applications such as E-learning tools, desktop publishing applications, web applications, computer peripherals, statistical analysis packages, and database development and manipulation. Demonstrate their ability to use the e-learning portal and to manage network spaces. Design newsletters and brochures using a publishing software and design tools. Design and develop web applications using a web developing software. Connect, install and troubleshoot peripherals and other similar devices Use statistical analysis package to enter and analyze data. Develop and manipulate databases and create a front-end	3

	design for the database.	
EECP1290	**Computer Programming for Engineering**: This course enables the students to understand different levels of computer programming languages. Students will be able to write and execute programs in C language for engineering problem solving. This course will also introduce UNIX operating system and it components.	3
BAMG 2111	**Entrepreneurship:** This course is to introduce the students to entrepreneurship phenomenon, and to expose them to the theory as well the experience associated with entrepreneurship. It also covers such area as financial management and planning, legal regulation, concepts and tools in developing new venture communication tools in small business.	3

Engineering Department

Electrical Section

Diploma Level in Electrical Engineering

COURSE CODE	COURSE DESCRIPTION	CREDIT HOURS
MATH 2100N	**Calculus II:** This course enables the students to learn the various integration methods like, integration by parts, by long division, by using partial fractions, by trigonometric substitution, by reduction formula etc. Numerical integration. Definite integration and its properties. Applications of definite integrals to find areas and volumes. Concepts of even and odd functions. Concept of zeros of a function. Area between two curves. Lengths of plane curves. The functions of several variables. Partial derivatives of order one and two. Graphs of some well known functions. Multiple integrals: Double integrals. Change of order of integration.	3
EEPW 2150	**Electrical Principles:** This course provides the students with an understanding of basic electrical principles and concepts, leading to the ability to carry out calculations involving DC circuits, inductive & capacitive circuits, DC network theorems, electromagnets and AC fundamentals.	3
ENGL 2100	**Technical Communication:** This course is designed to provide the learner with writing skills for academic and practical purposes. Speaking skills relevant to presentation delivery are also targeted. Other skills namely reading and listening will be improved as a result from the focus on writing skill.	3
EETE 2102	**Electronics I:** This course is designed to build a strong foundation for the students on basic electronics. It deals mainly with the basic semiconductor devices like diodes, BJT FET, MOSFET and their characteristics. This course also deals with the basic amplifiers and circuits.	3
EERE 2201	**Introduction to Renewable Energy:** This course develops the ability To understand the importance of renewable energy resources and its utilization for the thermal and electrical energy needs and also the environmental aspects of these resources. Understand the various forms of conventional energy resources. Learn the present energy scenario and the need for energy conservation. Explain the concept of various forms of renewable energy. Outline division aspects and utilization of renewable energy sources for both domestics and industrial application. Analyze the environmental aspects of renewable energy resources.	3
PHIL 3108	**Business Ethics:** This course is to equip the student with the highest ethical standards that will guide him/her through real life dilemmas. It also enables the student to understand the concept of value, Islamic and Omani values, appreciate and respect ethnic and cultural diversity.	3
EEPW 2251	**Electrical Power Technology:** This course has been introduced for providing the students with understanding of the working and operation of Three phase power supply systems and loads, Transformer, DC& AC Generators and Motors which are employed in the industries and commercial/domestic buildings. This course includes both theory and practical aspects with more emphasis on practical experiments.	3
EETE 2270	**Fundamentals of Digital Electronics:** This course enables the students to understand fundamentals of digital electronics. It provides the students the knowledge designing and implementing different types of logic circuits-Both combinational logic &sequential logic	3
EEPW 2241	**Electrical Skills:** This subject allows the student to have practical experience on the functioning of electrical circuits and various equipments. They will have the complete knowledge of electrical installation design of a building which will help them in future. They will be able to handle the electrical equipments (ELCB, MCB, Fan motor, Tube light circuit, Pump Motor control etc.) that they come across in day to day life.	3
EEPW 2252	**Electrical Power Systems:** This course is designed to enable the students to understand the generation, transmission and distribution of Electrical power associated with mathematical modeling for power systems.	3

EEPW 2399	**Diploma Project:** To expose each student to the situation where he/she works individually or on a team in a project in the field of engineering. The course will enable the student to integrate the various areas of knowledge he/she gained through the program and to consolidate personal confidence in working independently or as a team and improve his/her spirit of performance.	3
EEP W2320	**Instrumentation & Measurement Techniques:** This course enables the students get exposure to sensors of different forms for automation. Measurement methodologies.	3

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Engineering Department

Electrical Section

Higher Diploma Level in Electrical Engineering

COURSE CODE	COURSE DESCRIPTION	CREDIT HOURS
MATH3120N	**Engineering Mathematics:** This course introduces the students to differential equations. This enable the students to learn how the physical problems are represented by means of differential equations, to recognize their types, various methods of solving them, various types of solutions and distinction between them, and to recognize the governing differential equations frequently arise in engineering situations. Laplace transformations, their uses to find solutions of initial value problems and boundary value problems. Partial differential equations and their applications in engineering.	3
EETE3102N	**Electronics II:** The course Electronics helps the student to recognize and describe the functions of different electronic circuits used in telecommunications. Analyze telecommunications electronics circuits to determine their characteristic properties. Design telecommunications electronics circuits to meet stated specifications. Increase proficiency in using electronic test instrumentation and procedures.	3
PHIL3201	**Formal Arabic Communication:** This course is to strength the relationships between the students and his Arabic language and to sure its academic and practical role in society. Also to gain the basic skills in oral and written communication.	3
EEPW3150	**Power Distribution Systems:** This course enable the student to design distributions feeders, locating the substations, voltage drop and power –loss calculations, formulate the objective of distribution system protection, Coordination of protective devices , compensation for power factor improvement.	3
EEPW3142	**Electrical Installation & Wiring Design:** This course enable the student to: Know the electrical safety rules, Understand the basic of electrical circuits and machines, Understand the concepts of lighting and illumination, Understand the concepts of insulation materials, Understand the concepts insulation circuits and systems, Understand the concepts of earthing and protection Types of wires and cables, Classes of Insulating materials for cables, transformers, electrical Machines, Design of transformers-core, windings, dimensions. Design of wiring for instruments, machines, computers, communication equipments. Installation procedures and implementation methods for Electrical Installations	3
EEPW3257	**Power Electronics:** This course focuses on the modern Power Electronic devices and the related power conditioners which play a major role in the areas of Power Control and Industrial Drives. This course contains both theory and practical of various types, working an applications of power switching devices such as Thyristor, GTO, Triac, BJT, Power MOSFET, IGBT, etc.	3

ENGL3100	**Public Speaking:** To introduce the student to the principles of public speaking to foster critical thinking and to equip him/her with the skills necessary for producing effective and credible presentations that are suitable for their audiences and purposes. The course enables students to understand the basic principles of public speaking and the different types of presentations suited to different audiences and purposes.	3
EEPW3200	**Control System:** This course enable the student to formulate the differential equations, transfer functions for electrical, mechanical, and electro-mechanical systems , analyze impulse and step responses, principle of PI, PD and PID compensations , analyze stability in time domain using Routh - Hurwitz criterion and root locus method, conduct frequency analysis using polar plot, Bode plot and magnitude phase plot, design compensation circuits with lag, lead and lag-lead compensation techniques	3
EEPW3258	**Machines & Drives:** This course enable the student to: Understand the concepts of variable-speed drives and design gating circuits, know different drive analysis in motor and regeneration modes, understand the concepts of control speed and torque independently via field oriented control, know the parameters of adjustable-speed drives and efficiency.	3
EEPW3152	**Power System Analysis:** This course enable the student to: Understand the concepts of three-phase analysis and power calculations, Understand the concepts of load flow in power system, Understand the concepts of symmetrical and unsymmetrical faults, Understand the concepts of power system stability, understand the concepts of economic operation. Power System components, Symmetrical Components_ symmetrical and unsymmetrical faults, Load flow studies: admittance and Impedance matrices, Power System Stability, Traveling waves	3
EEPW3300	**Energy Conversion Systems:** This course enable the student to familiarize and understand the basic principles of non conventional energy like solar, biomass, wind and also water based systems such as wave, tidal, mini micro hydro systems and its conversion to electrical energy.	3
EETE3399	**Higher Diploma Project:** To expose each student to the situation where he/she works individually or on a team in a project in the field of engineering. The course will enable the student to integrate the various areas of knowledge he/she gained through the program and to consolidate personal confidence in working independently or as a team and improve his/her spirit of performance.	3

Engineering Department

Electrical Section

Baccalaureate in Electrical Power Engineering

COURSE CODE	COURSE DESCRIPTION	CREDIT HOURS
MATH 4130	**Probability & Statistics:** This course deals with describing and summarizing data: data and variables, description of the observed distributions, histograms, linear relationships, multiplicative and addictive structures in two-way tables. Probability and probability distributions: Observations and events, the axioms of probability theory, conditional probabilities, discrete and continuous random variables, mean values and variances, special discrete and continuous distributions. Inferences based on samples: Chebyshev and Rsquo's rule, the central limit theorem, estimation with confidence intervals, the t-statistic, and one sided and two sided tests about a population mean.	3
EECP 4192	**Software Engineering:** This course enable the student to, Understand the object-oriented programming paradigm, Reuse mechanisms in object-oriented languages, Specify requirements and use case, Analyze and design programs using object-oriented methodologies, Design patterns, Unify modeling language.	3
EEPW 4153	**Transient System Stability:** The course will enable the student to: Understand the multifaceted aspects of transient stability from physics description and formulation of the problem, Know the methods of transient stability, and Understand the concepts extended equal-area criterion. Steady state and transient stability, voltage stability. Model of the power system to study the transient stability. Transient stability by numerical methods, equal area criteria, extended area criteria to study PSS, different energy swing equation, energy function methods to study stability, Power flow and improving stability, study of transient disturbances.	3
EEPW 4180	**Numerical Methods in Power Systems:** The course will enable the student to: efficient in data power flow studies, Static load flow equations, Load flow solutions using Newton Raphson method and Gauss Seidel Methods. Solve problem by using Newton Raphson Method in polar and rectangular coordinates. Apprehend 3-phase symmetrical fault analysis and unsymmetrical fault analysis. Grasp elementary idea of steady state, Dynamic and transient stabilities. Produce simulation of swing equation using numerical methods	3

PHIL 4100	**Oman Civilization:** To acquaint the student with Omani and Islamic civilization, their development and significance during different pre- and post-Islam eras, and with the Islamic judicial system. The course enable the student to: Understand the geography of Oman, Be familiar with the significance of Omani civilization during pre- and post-Islam eras, Understand Islamic civilization, its development, and its supporting factors, Understand the Islamic judicial system during different post-Islam eras.	3
EEPW 4259	**High Voltage Engineering:** This course will enable the student to: Know the methods of generation of high DC and AC voltages and controlling methods, Understand the breakdown phenomena in gaseous, liquid and solid media, Know different ways of high voltage measurements and testing, understand the concept of over voltage and principles of insulating coordination. Study of high voltage and extra high voltage transmission, types of insulators, transformer oil, H.V. cable insulation, testing methods for insulation, insulators, Transformer, circuit breaker oil. Extra HVDC. High voltage circuit breakers,. CT, PT, Capacitor voltage transformer, Impulse generator, HV DC power supply kit, Transformer Oil testing equipment.	3
EEPW 4254	**Switchgear and Protection:** This course will enable the student to: Introduce with the theoretical principles and current state of the art of switchgear and protection Engineering. Understand the concepts of circuit interruption and protection. Understand the concepts of circuit breaker as a kind of protection. Understand the concepts of analogue protection. Understand the concepts of digital protection.	3
EECP 3171	**Microprocessors System & Interfacing:** This course enables the student to investigate the basic architecture for a microprocessor based system and study the specifications and functions of its parts. Also this course enables the student to write software for microprocessor based system using both programmable and non-programmable interface devices.	3
EEPW 4256	**Power Stations:** This course will enable the student to: Understand the concept of load curves, Know different types of power stations, and Know different types of power substations, Understand the concepts of energy tariff. Study of Thermal, Nuclear, Hydro, Diesel, gas turbine power stations, Non-conventional power generation, Maintenance and operation of Gas-turbine generating station and the Sub-Stations, Power plant economics and tariffs, economic operation of Power systems, development of Non-conventional power generating stations.	3
EEPW 4299	**B.Tech. Project 1:** To expose each student to the situation where he/she works individually or on a team in a project in the field of engineering. The course will enable the student to integrate the various areas of knowledge he/she gained through the program and to consolidate personal confidence in working independently or as a team and improve his/her spirit of performance.	3
EEPW 4255	**Power System operation & Reliability:** This course should enable the student to: Understand and explore a number of engineering matters involved in operating, controlling of power generating and transmission systems and to understand the application of reliability concepts in enhancing power system security. Concept of reliability in enhancing power system security, thermal unit constraint, hydro constraint, priority-list methods, dynamic programming, contingency analysis, AC load flow, Tie-line control, reliability functions, Markov's process.	3
EEPW 4299	**B.Tech. Project 2:** To expose each student to the situation where he/she works individually or on a team in a project in the field of engineering. The course will enable the student to integrate the various areas of knowledge he/she gained	3

	through the program and to consolidate personal confidence in working independently or as a team and improve his/her spirit of performance.	