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|  **Physics Teaching & Learning Framework (Block)**  |
| **Unit 1****3.5 weeks** | **Unit 2****3 weeks** | **Unit 3****4.5 weeks** | **Unit 4****3 weeks**  | **SLO Exam**  | **Unit 5** **2 weeks** | **Unit 6:** **1 week**  |
| **Kinematics** **SP1** | **Forces** **SP2** | **Momentum and Energy** **SP3** | **Sounds, Waves and Light** **SP4** |  | **Electricity & Magnetism** **SP5** | **Modern Physics****SP6** |
| **Vectors/Frame of Reference/Linear Motion (SP1a)***combining vectors, analysis, direction**-frames of reference & SYSTEMS****-****linear motion**-rates***Speed, Velocity and Acceleration (SP1b)***-Speed (rate of motion)**-Relationship between velocity (speed and direction) and acceleration***Graphical Analysis-Slopes (SP1c)***-Distance/time graphs**-Speed/time graphs**-Velocity/time graphs***2-D motion & projectiles (SP1d)***-parabolic paths**-looking at vectors of projectile**-height & range calculations**FREE FALL* | **Newton’s Laws of Motion (SP2a)***-3 laws & examples**-Review relationships of force, mass & acceleration**- weight & mass relationship**-Net Force***Free-body diagrams (SP2b,c)****-***Drawing and labeling forces***-***Normal Force, applied, gravity, friction, equilibrium* **Gravitational Force (SP2c,e)** *-Inverse square Laws* *-interactions of universal gravity law* **Rotational Motion (SP2d)** *-linear and angular velocity -centripetal acceleration -centripetal force* | **Vector nature of momentum (SP2a,d)***-collisions**-Law of Conservation Momentum, open/closed systems**-Impulse/Momentum theorem- F∆t=m∆v***PE/KE Relationships & Equations (SP2b)****-***Law of Conservation of Energy**-KE motion/temperature**-PE gravitational/elastic**-mechanical energy***Work-Energy Theorem (SP2b)***-changes in KE/PE**-internal energy***Energies****-***mechanical, thermal, nuclear, chemical, solar, wind, water ,electrical* *-thermal, heat & temperature***Power (SP2c)***-Work/Time**-rates* | **General Properties of Waves (SP4a,b,d)***-diffraction, refraction, reflection, absorption, polarization**-interactions of waves***Sound & Light as model systems-SOUND (SP4c)***-longitudinal & transverse**-specific properties of sound**-Doppler effect**-calculations using v=fλ***Sound & Light as model systems-LIGHT (SP4e)***-duality of light, photon**-specific properties of light**-Doppler effect**-***Electromagnetic Spectrum (SP4a,b,d,e)***-calculations using v=fλ**-Light & Color***Optics (SP4f,g)***-Law of reflection**-lenses and mirrors**-Snell’s law**-thin lens equation***Light Energy***-photo-electric effect**-Einstein’s contributions.* |  | **Fundamental Property of Charge (SP5b,c)***-review charges**-behavior of charge**-static electricity, induction**-Van de Graff generator***Coulomb’s Law (SP5a)****-***field forces***-***inverse square law**-relationship of electric & magnetic forces***Energy conversion (SP5c)****-***mechanical to electrical: Dams & Generators**- review Law of Conservation of Energy***Potential Difference, Current & Resistance in DC circuit (SP5d)***-Ohm’s Law**-relationships apparent in V=IR, power***Circuits (SP5d)***-circuit diagrams**-series & parallel circuits**-equivalent resistances in series & parallel* *-Kirchoff’s Rules***Motion of electric charge in magnetic field (SP5e)***-generators & motors**-transformers***Magnets (SP5e)***-field forces* | **Nuclear Physics (SP6a,b,c)***-radioactivity and decay, half-life**-Fission/Fusion**-energy/mass conversion and conservation of energy/matter* |
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|  **Physics Teaching & Learning Framework (Yearly)** |
| **Unit 1****7 weeks** | **Unit 2****6 weeks** | **Unit 3****9 weeks** | **Unit 4****6 weeks**  | **SLO Exam**  | **Unit 5** **4 weeks** | **Unit 6:** **2 weeks**  |
| **Kinematics** **SP1** | **Forces** **SP2** | **Momentum and Energy** **SP3** | **Sounds, Waves and Light** **SP4** |  | **Electricity & Magnetism****SP5**  | **Modern Physics****SP6** |
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