

**AN ENGLISH-LUGANDA LIST OF UCE-UACE-BSc PHYSICS  
TERMS** (Part 1 of 2)

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## **AN ENGLISH-LUGANDA LIST OF UCE-UACE-BSc PHYSICS TERMS (Part 1 of 2)**

(Olukalala Olungeleza-Luganda olw'Ebimiimo bya Fizika wa UCE-UACE-BSc) (Ekitundu Ekisooka ku Bibili)

## INTRODUCTION

What the author has all along been bearing in mind while compiling the present English-Luganda list of UCE-UACE-BSc physics terms is a six-point programme for the development of Specialized Luganda. The programme is condensable as follows:



Since Phase I of the Programme is, to all intents and purposes complete, it now seems to be prudent to move on to Phase II so as to produce an effective springboard for the long-awaited Phase III i.e. coining specialized Luganda terms in virtually all fields of human knowledge.

The entire physics term list will be submitted to a panel of UCE, UACE, and BSc physics teachers qualified in English-Luganda term-coining for rigorous review.

## 1. PRELIMINARIES (Ebisookelwako)

|                        |   |                           |
|------------------------|---|---------------------------|
| mechanics              | = | mekanika                  |
| particle               | = | akasilikitu               |
| point particle         | = | akasilikitu nga akapointi |
| scientific notation    | = | endagisa y'ekinnakumanya  |
| significant figures    | = | ennambaba ez'omuzinzi     |
| SI system of units     | = | omuyungo gw'eminwe gya SI |
| metrology              | = | kannakupima               |
| standard               | = | olugelelo; F•gelelosi     |
| measure                | = | okupima                   |
| length                 | = | obuwantu                  |
| mass                   | = | omutole                   |
| time                   | = | ekiseela                  |
| current                | = | omukulukuto               |
| direction              | = | obwolekelo                |
| scalar quantity        | = | omungipimi                |
| vector quantity        | = | omungilazi                |
| vector                 | = | vekta                     |
| scalar                 | = | skalari                   |
| unit vector            | = | omunwe gwa vekta          |
| components of a vector | = | vektaco                   |
| vector addition        | = | okugatta vekta            |
| vector subtraction     | = | okutoolako vekta          |
| vector multiplication  | = | okubaza vekta             |
| vector product         | = | omubazolazi               |
| scalar product         | = | omubazopimi               |

## Obuwangomaaso bw'Olugelelo bwa SI

|            |          |           |
|------------|----------|-----------|
| $10^{30}$  | quecca•X | ogu•S•gga |
| $10^{27}$  | ronna•X  | ogu•S•ga  |
| $10^{24}$  | yotta•X  | oggua•S   |
| $10^{21}$  | zetta•X  | ogu•S     |
| $10^{18}$  | exa•X    | F•S•gga   |
| $10^{15}$  | peta•X   | F•S•ga    |
| $10^{12}$  | tera•X   | eli•S•jja |
| $10^9$     | giga•X   | eli•S•ja  |
| $10^6$     | mega•X   | eddi•S    |
| $10^3$     | kilo•X   | eli•S     |
| $10^2$     | hecto•X  | F•S•jja   |
| $10^1$     | deca•X   | F•S•ja    |
| $10^0$     | X        |           |
| $10^{-1}$  | deci•X   | F•S•ka    |
| $10^{-2}$  | centi•X  | F•S•kka   |
| $10^{-3}$  | milli•X  | aka•S     |
| $10^{-6}$  | micro•X  | akka•S    |
| $10^{-9}$  | nano•X   | aka•S•ka  |
| $10^{-12}$ | pico•X   | aka•S•kka |
| $10^{-15}$ | femto•X  | F•S•pa    |
| $10^{-18}$ | atto•X   | F•S•ppa   |
| $10^{-21}$ | zepto•X  | apa•S     |
| $10^{-24}$ | yocto•X  | appa•S    |
| $10^{-27}$ | ronto•X  | apa•S•pa  |
| $10^{-30}$ | quecto•X | apa•S•ppa |

**2. MOTION IN A STRAIGHT LINE** (Okwejjulula mu Layini Enteleevu)

|   |   |   |
|---|---|---|
| kinematics  | = | kinematika  |
| kinetics  | = | kinetika  |
| describe, to  | = | okukoba   |
| motion of an object   | = | okwejjulula kw'ekikonsi                                     |
| centre of mass  | = | entabilo y'omutole  |
| position vector   | = | vekta y'obwesangilo   |
| displacement  | = | obweseetulolazi   |
| distance  | = | obweseetulopimi; omuwendo ggeleggele<br>ogw'obweseetulolazi |
| velocity vector   | = | embilolazi  |
| average velocity  | = | embilolazi ez'ekitema                                       |
| speed   | = | embilopimi  |
| absolute value  | = | omuwendo ggeleggele   |
| instantaneous velocity  | = | embilolazi ey'akatemyo                                      |
| acceleration  | = | omwanguyilolazi   |
| average acceleration  | = | omwanguyilo ogw'ekitema                                     |
| instantaneous acceleration  | = | omwanguyilo ogw'akatemyo                                    |
| constant acceleration   | = | omwanguyilo ogutakyuka                                      |
| kinematical equations   | = | ebyenkano ebikinematikasi                                   |
| free fall   | = | okugwa okulembe   |
| reducing motion in more than<br>one dimension to one<br>dimension | = | okuzzakaka okwejjulula mu mpimo ssukkalumu ku<br>lumu       |

**3. MOTION IN TWO AND THREE DIMENSIONS** (Okwejjulula mu Mpimilo Ebbili  
n'Essatu)

|                   |   |                         |
|-------------------|---|-------------------------|
| coordinate system | = | omuyungo gw'entabaganye |
| dimension         | = | olupimilo               |
| velocity          | = | embilolazi              |

|  |   |   |
|--|---|---|
| acceleration                               | = | omwanguyilo                             |
| ideal projectile                           | = | ekibuusalalo ekyelowooze                |
| ideal projectile motion                    | = | okwejjulula kw'ekibuusalalo ekyelowooze |
| path                                       | = | akakubo                                 |
| trajectory                                 | = | olukasukalulo                           |
| time dependence                            | = | okwesigama ekiseela                     |
| flight                                     | = | olubuuko                                |
| vertical component of the initial velocity | = | ekitundu ekyesimbu eky'embilo entandisi |
| maximum height                             | = | obutumbiivujja                          |
| maximum range                              | = | olutuukilojja                           |
| realistic projectile motion                | = | okwejjulula kw'ekibuusalalo ekyewe      |
| air resistance                             | = | obugugubi bw'empewo                     |
| spin                                       | = | okwebonga                               |
| surface properties of the projectile       | = | ebyannyini by'ekibuusalalo eby'olwenyi  |
| ballistic curve                            | = | oluwete olubutidas                      |
| relative motion                            | = | okwejjulula okugandanyi                 |
| relative velocity                          | = | embilolazi enghandanyi                  |
| Galilean transformation                    | = | enkyusalulo y'ekinnaGalileo             |

#### 4. FORCE (Ekikasi)

|                                |   |                     |
|--------------------------------|---|---------------------|
| dynamics                       | = | dyinamika           |
| contact force                  | = | ekikasi ekikwatanyi |
| tension                        | = | obuleevu            |
| compression                    | = | obunyivu            |
| normal (= perpendicular) force | = | ekikasi ekyesimbu   |
| friction (force)               | = | obukuubi            |
| spring force                   | = | ekikasi ky'omutambo |

|   |   |   |
|---|---|---|
| fundamental forces                      | = | ebikasi ebitandikilosi                              |
| gravitational force                     | = | ekikasi ekisikilizosi                               |
| electromagnetic force                   | = | ekikasi ekyelektromagnetisi                         |
| strong nuclear force                    | = | ekikasija ky'omulamwa                               |
| weak nuclear force                      | = | ekikasika ky'omulamwa                               |
| gravitational force vector              | = | ekikasilazi ekisikilozosi                           |
| weight                                  | = | obuzito   |
| mass                                    | = | omutole   |
| vector quantity                         | = | omungilazi  |
| gravitational mass                      | = | omutole omusikilizosi                               |
| inertial mass                           | = | omutole omusisiggilivusi                            |
| Higgs particle                          | = | akasilikitu ka Higgs                                |
| net force                               | = | ekikasi ekizaanise                                  |
| free-body diagram                       | = | olukobayime lw'omubili omulembe                     |
| Newton's First/ Second/ Third Law       | = | Etteeka lyu Newton Elisooka/ Elyokubili/ Elyokusatu |
| static equilibrium                      | = | obuzitonkanyi obuweelosi                            |
| dynamic equilibrium                     | = | obuzitonkanyi obusiweelosi                          |
| ropes and pulleys                       | = | emiguwa n'ebiroda                                   |
| Attwood machine                         | = | mashini ya Attwood                                  |
| collision                               | = | ekitomelagano                                       |
| frictionless                            | = | $F_a \bullet sikuubi$                               |
| kinetic friction                        | = | obukuubi obusiweelosi                               |
| static friction                         | = | obukuubi obuweelosi                                 |
| coefficient of kinetic/ static friction | = | ennambagano y'obukuubi obusiweelosi/ obuweelosi     |
| force multiplier                        | = | ekibazakikasi                                       |
| air resistance                          | = | obugugubi bw'empewo                                 |
| drag force                              | = | ekikasi ekikuluzi                                   |

|                |   |                    |
|----------------|---|--------------------|
| terminal speed | = | embilopima emalako |
| tribology      | = | kannakukuuba       |

5. **KINETIC ENERGY, WORK AND POWER** (Amaanyi Amakinetika, Omulimu, n'Omuyinzilo)

|   |   |   |
|---|---|---|
| kinetic energy                              | = | amaanyi amakinetika                                 |
| work  | = | omulimu   |
| work-kinetic energy theorem                 | = | theorema ku mulimu n'amaanyi amakinetika            |
| work done by the gravitational force        | = | omulimu ogukolebwa ekikasi ekisikilizosi            |
| work done in lifting and lowering an object | = | omulimu ogukolebwa mu kusitula n'okussa ekikontanyi |
| lifting with pulleys                        | = | okusituza ebiroda                                   |
| work done by the spring force               | = | omulimu ogukolebwa ekikasi ky'omutambo              |
| power                                       | = | omuyinzilo  |

6. **POTENTIAL ENERGY AND ENERGY CONSERVATION** (Amaanyi Amasobofu n'Obukuumilizi bw'Amaanyi)

|  |   |  |
|--|---|--|
| potential energy                         | = | amaanyi amasobofu                            |
| conservative force                       | = | ekikasi ekikuumilizi                         |
| nonconservative force                    | = | ekikasi ekisikuumilizi                       |
| isolated system                          | = | omuyungo omubaliye                           |
| closed path                              | = | olukubo oluggale                             |
| mechanical energy                        | = | amaanyi amekanika                            |
| law of conservation of mechanical energy | = | etteeka ly'obukuumilizi bw'amaanyi amekanika |
| work and energy for the spring force     | = | omulimu n'amaanyi kulw'ekikasi ky'omutambo   |
| amplitude                                | = | olwesambojja                                 |

|   |   |   |
|---|---|---|
| potential energy for the spring force             | = | amaanyi amasobofu ag'ekikontanyi ekileebeeta okuva ku mutambo |
| nonconservative force and the work-energy theorem | = | ebikasi ebisikuumilizi ne theorema y'omulimumaanyi            |
| total energy                                      | = | omugatte gw'amaanyi   |
| potential energy and stability                    | = | amaanyi amasobofu n'obutebenkevu                              |
| stable equilibrium point                          | = | pointi y'obuzitonkanyi entebenkevu                            |
| unstable equilibrium point                        | = | pointi y'obuzitonkanyi etetebenkela                           |
| turning point/ stationary point                   | = | pointi y'okukyuka/ pointi ennyimilivu                         |

## 7. MOMENTUM AND COLLISIONS (Envuumuulo n'Ebitomelagano)

|   |   |  |
|---|---|--|
| momentum                                      | = | envuumuulo   |
| linear momentum                               | = | envuumuulo endainisi                               |
| angular momentum                              | = | envuumuulo ensondasi                               |
| impulse                                       | = | akapakuko  |
| elastic collision                             | = | ekitomelagano ekinaanuuufu                         |
| totally inelastic collision                   | = | ekitomelagano ekinaanuuufukka                      |
| law of conservation of total momentum         | = | etteeka ly'obukuumilizi bw'envuumuulojja           |
| elastic collisions in one dimension           | = | ebitomelagano ebinaanuuufu mu lupimilo-lumu        |
| elastic collisions in two or three dimensions | = | ebitomelagano ebinaanuuufu mu mpimilo-bbili/ ssatu |
| collisions of two objects in two dimensions   | = | ebitomelagano by'ebikontanyi mu mpimilo-bbili      |
| totally inelastic collisions                  | = |  |
| ballistic pendulum                            | = | olusuubo olubutidasi                               |
| explosion                                     | = | okubwatuwa   |
| particle physics                              | = | fyizika w'obusilikitu                              |
| partially inelastic collision                 | = | ekitomelagano ekinaanuuufuka                       |

|                            |   |                              |
|----------------------------|---|------------------------------|
| potential well             | = | oluzzi olusobofu             |
| bound state                | = | embeela ensibe               |
| collide                    | = | okutomelagana                |
| tunneling                  | = | okukwesesa                   |
| forbidden region           | = | ekitundu ekiwele             |
| coefficient of restitution | = | ekinnambawami ky'okuzzibwawo |
| billiards and chaos        | = |                              |
| chaos theory               | = | theoria y'obutabangufu       |

8. **SYSTEMS OF PARTICLES AND EXTENDED OBJECTS** (Emiyungo gy'Obusilikitu n'Ebikontanyi Ebiwaayileko)

|   |   |  |
|---|---|--|
| centre of mass                              | = | entabilo y'omutole                                     |
| centre of gravity                           | = | entabilo y'omuzito                                     |
| combined centre of mass for two objects     | = | entabilo y'omutole engatte ku lw'ebikontanyi ebibili   |
| combined centre of mass for several objects | = | entabilo y'omutole engatte ku lw'ebikontanyi ebiwelako |
| centre-of-mass momentum                     | = | envuumuulo y'entabilo y'omutole                        |
| recoil                                      | = | okuzingakaka   |
| general motion of the centre of mass        | = | okwejjulula okukiisisi okw'entabilo y'omutole          |
| rocket motion                               | = | okwejjulula kwa roketi                                 |
| spherical coordinates                       | = | entabaganye enkulungojjasi                             |
| cylindrical coordinates                     | = | entabaganye ensilindasi                                |
| volume integrals                            | = | ennambilizo z'ebbangajja                               |
| system of particles                         | = | omuyungo gw'obusilikitu                                |
| extended object                             | = | ekikontanyi ekigaziye                                  |
| extended body                               | = | omubili omugaziye                                      |

## 9. CIRCULAR MOTION (Okwejjululila mu Nkulungo)

|                          |   |                              |
|--------------------------|---|------------------------------|
| polar coordinates        | = | entabaganye empagisi         |
| circular motion          | = | okwejjulula okukulungosi     |
| angular coordinates      | = | entabaganye ensondasi        |
| angular displacement     | = | obweseetulolazi obusondasi   |
| arc length               | = | obuwantuweoteca              |
| angular velocity         | = | embilolazi ensondasi         |
| angular frequency        | = | omutelo omusondasi           |
| period (of rotation)     | = | oluddanato lw'okwetooloola   |
| linear velocity          | = | embilolazi endainisi         |
| angular acceleration     | = | omwanguyilo omusondasi       |
| tangential acceleration  | = | omwanguyilo omukwatakosi     |
| radial acceleration      | = | omwanguyilo omuradiusisi     |
| centripetal acceleration | = | omwanguyilo omunoonyantabilo |
| ultracentrifuge          |   |                              |
| centripetal force        | = | ekikasi ekinoonyantabilo     |
| conical pendulum         | = | olusuubo olusoggosi          |

## 10. ROTATION (Okwetooloola)

|  |   |  |
|--|---|--|
| kinetic energy of rotation                 | = | amaanyi amakinetika ag'okwetooloola                      |
| point particle in circular motion          | = | akasilikitu mu kwejjulula okukulungosi                   |
| several point particles in circular motion | = | obusilikitu/ pointi obuwelako mu kwejjulula okukulungosi |
| axis of rotation                           | = | olwetoololelo  |
| moment of inertia                          | = | olunyoolo lw'obusisiggilivu                              |
| rotational inertia                         | = | obusisiggilivu bw'okwetooloola                           |
| parallel-axis theorem                      | = | theorema y'olwetoololelo-olulalabiizi                    |
| rolling without slipping                   | = | okuyilingita awatali kuseelela                           |

|   |   |  |
|---|---|--|
| rolling motion                          | = | okwejjulula okuyilingita                           |
| sphere rolling down an inclined plane   | = | enkulungojja okuyilingitila ku luseetwe oluwunzike |
| race down an incline                    | = |  |
| ball rolling through a loop             | = | omupiila okuyilingita nga guyita mu lulippo        |
| torque (= moment of a force)            | = | olunyoolo  |
| net torque                              | = | olunyoolo oluzaaniye                               |
| Newton's Second Law for Rotation        | = | Etteeka lyu Newton Elyokubili ku lw'Ekwetooloola   |
| rotation                                | = | okwetooloola                                       |
| translation                             | = | okweseetula  |
| work done by torque                     | = | omulimu ogukolebwa olunyoolo                       |
| angular momentum                        | = | envuumuulo ensondasi                               |
| system of particles                     | = | omuyungo gw'obusilikitu                            |
| rigid objects                           | = | ebikontanyi ebitaweteka                            |
| angular momentum of a rigid body        | = |  |
| Law of Conservation of Angular Momentum | = |  |
| gyroscope                               | = | ekilabisampeta                                     |
| precession                              | = | okwebongamaasa                                     |

## 11. STATIC EQUILIBRIUM (Obuzitonkanyi Obustatika)

|                       |   |                            |
|-----------------------|---|----------------------------|
| statics               | = | kannabutejjulula/ statika  |
| dynamics              | = | kannakwejjulula/ dyinamika |
| static equilibrium    | = | obuzitonkanyi obustatika   |
| dynamic equilibrium   | = | obuzitonkanyi obudyinamika |
| equilibrium equations | = | ebyenkano by'obuzitonkanyi |
| stability             | = | obutebenkevu               |

|                                      |   |   |
|--------------------------------------|---|---|
| quantitative condition for stability | = | akakwakkulizo akangindanyi ku lw'obutebenkevu |
| stable equilibrium                   | = | obuzitonkanyi obutebenkevu                    |
| neutral equilibrium                  | = | obuzitonkanyi obulesi                         |
| unstable equilibrium                 | = | obuzitonkanyi obutatebenkela                  |

## 12. GRAVITATION (Omusikilizo)

|   |   |  |
|---|---|--|
| Newton's Law of Gravitation               | = | Etteeka lya Newton ely'Omusikilizo                       |
| universal gravitational constant          | = | ekisikyusi ky'omusikilizo ekibunyi                       |
| superposition                             | = | okuteekagula ( $\nabla$ oku•S•gula)                      |
| superposition principle                   | = | ekitandikilo ky'okuteekagula                             |
| point masses                              | = | emitolepointi  |
| gravitational force from a sphere         | = | ekikasi ky'omusikilizo okuva mu nkulungojja              |
| Solar System                              | = | Omuyungo Omuyubasi                                       |
| influence of celestial objects            | = | obusenselo bw'ebikontanyi ebyengulasi                    |
| gravitation near the surface of the Earth | = | omusikilizo okumpi n'olwenyi lwa Nnattaka                |
| black hole                                | = | ekinnya ekiddugavu                                       |
| gravitational tear from a black hole      | = | okuyulika kw'omusikilizo oguva mu kinnya ekiddugavu      |
| gravitation inside the Earth              | = | omusikilizo munda mu Nnattaka                            |
| force of gravity inside a hollow sphere   | = | ekikasi ky'omusikilizo munda mu nkulungojja y'omuwulenge |
| gravitational potential energy            | = | amaanyi amasobofu  |
| escape speed                              | = | embilo z'okubomba  |
| asteroid impact                           | = | okutomelana kw'ekimunyeenyekuzi                          |
| gravitational potential                   | = | essobofu ly'omusikilizo                                  |

|                                    |   |   |
|------------------------------------|---|---|
| Kepler's Laws and Planetary Motion | = | Amateeka ga Kepler n'Okwejjulula kwa Zissenghendo |
| Kepler's First Law: Orbits         | = | Etteeka lya Kepler Elisooka: Enneetoololo         |
| Kepler's Second Law: Areas         | = | Etteeka lya Kepler Elyokubili: Amabangaja         |
| Kepler's Third Law: Periods        | = | Etteeka lya Kepler Elyokusatu: Eziddanasi         |
| aphelion                           | = | akayubasuulojja                                   |
| perihelion                         | = | akayubasuulokka                                   |
| orbital period of Sedna            | = | oluddanasi lw'etoololo lwa Sedna                  |
| satellite orbits                   | = | enneetoololo za satellite                         |
| Milky Way                          | = | Olukuubota  |
| geostationary satellites           | = | zisatelliti ennyimilivutaka                       |
| energy of a satellite              | = | amaanyi ga satellite                              |
| dark matter                        | = | ekitwalabbanga eky'enzikiza                       |
| dark energy                        | = | amaanyi ag'enzikiza                               |

### 13. SOLIDS AND FLUIDS (Ebinywevu n'Ebkulukusi)

|                       |   |                                |
|-----------------------|---|--------------------------------|
| atom                  | = | atomu                          |
| composition of matter | = | obuteekawame bw'ekitwalabbanga |
| Avogadro's number     | = | nnamba ya Avogadro             |
| states of matter      | = | embeela z'ekitwalabbanga       |
| fluid                 | = | ekikulukusi                    |
| solid                 | = | ekinywevu                      |
| gas                   | = | ekikulukutawumi                |
| liquid                | = | ekikulukutawami                |
| plasma                | = | plasma                         |
| tension               | = | obuleevu                       |
| compression           | = | obunygawami                    |
| shear                 | = | okumwa                         |
| elasticity of solids  | = | obunaanuufu bw'ebinywevu       |

|                        |   |                                      |
|------------------------|---|--------------------------------------|
| elastic limit          | = | ekkomo ly'obunaanuufu                |
| stress                 | = | omutuntuzilo                         |
| strain                 | = | omugongobalilo                       |
| stretching (= tension) | = | obuleevu                             |
| modulus of elasticity  | = | modulus y'obunaabuufu                |
| Young's modulus        | = | modulus ya Young                     |
| bulk modulus           | = | modulus y'ebbangajja                 |
| shear modulus          | = | modulus y'okumwa                     |
| pressure               | = | omunyigilo                           |
| Pascal's Principle     | = | Ekitandikilo kya Pascal              |
| Archimedes' Principle  | = | Ekitandikilo kya Archimedes          |
| buoyant force          | = | ekikasi ekitengezza                  |
| ideal fluid motion     | = | okwejjulula kw'ekikulukusi okwelooze |
| laminar flow           | = | okukulukuta okusifuukuufu            |
| turbulent flow         | = | okukulukuta okufuukuufu              |
| incompressible flow    | = | okukulukuta okutanyigawamika         |
| nonviscous flow        | = | obutakulukutaka                      |
| irrotational flow      | = | okukulukuta okusyetooloozi           |
| Bernoulli's Equation   | = | Ekyenkano kya Bernoulli              |
| viscosity              | = | okukulukutaka                        |
| turbulence             | = | obufuukuufu                          |
| Reynold's number       | = | nnamba ya Reynold                    |
| equation of continuity | = | ekyenkano ky'obweyongezi             |

#### 14. OSCILLATIONS (Enkankano)

|                        |   |                                 |
|------------------------|---|---------------------------------|
| oscillate              | = | okukankana                      |
| oscillations           | = | enkakano                        |
| simple harmonic motion | = | okwejjulula okutuukanye okwangu |

|  |   |  |
|--|---|--|
| periodic motion                          | = | okwejjulula okuddanasi                       |
| amplitude                                | = | olwesuulojja                                 |
| angular speed                            | = | embilopimi                                   |
| period                                   | = | oluddanasi                                   |
| frequency                                | = | omutelo                                      |
| pendulum motion                          | = | okwejjulula kw'olusuubo                      |
| work and energy in harmonic oscillations | = | omulimu n'amaanyi mu nkankana entuukanye     |
| energy of a pendulum                     | = | amaanyi g'olusuubo                           |
| damped harmonic motion                   | = | okwejjulula okutuukanye ate nga kukkanckanye |
| forced harmonic motion                   | = | okwejjulula okutuukanye ate nga kukake       |
| phase space                              | = | ebbangaa ly'omutendela                       |
| chaos                                    | = | obutabangufu                                 |

## 15. WAVES (Amayengo)

|                     |   |                              |
|---------------------|---|------------------------------|
| wave motion         | = | okwejjulula kw'ejjengo       |
| coupled oscillators | = | ebikankanyi                  |
| transverse wave     | = | ejjengo elyekiise            |
| longitudinal wave   | = | ejjengo ekkiibi              |
| period              | = | oluddanasi                   |
| wavelength          | = | obuwavuyengo                 |
| sinusoidal waveform | = | ekikulayengo ekisinusifaanyi |
| wave number         | = | nnamba y'ejjengo             |
| phase               | = | omutendela                   |
| wave equation       | = | ekyenkano ky'ejjengo         |
| reflection of waves | = | okuwetakaka kw'amayengo      |
| spherical waves     | = | amayengo mu nkulungojja      |
| plane waves         | = | amayengo ku luseetwe         |
| surface waves       | = | amayengo ku lwenyi           |

|                               |   |   |
|-------------------------------|---|---|
| seismic waves                 | = | amayengo ga musisi                      |
| energy of a wave              | = | amaanyi g'ejjengo                       |
| power and intensity of a wave | = | omuyinzilo n'obunyiinyiitivu bw'ejjengo |
| superposition principle       | = | ekitandiko ky'obuteekaguzi              |
| interference of waves         | = | okuyingilagana kw'amayengo              |
| constructive interference     | = | okuyingilagana okuzimba                 |
| destructive interference      | = | okuyingilagana okuzikiliza              |
| standing wave                 | = | ejjengo elitaseguka                     |
| node                          | = | ennyingo                                |
| antinode                      | = | ennyingogaanyi                          |
| resonance frequency           | = | omutelo gw'okuvuganata                  |

## 16. SOUND (Ekivugo)

|                             |   |                                       |
|-----------------------------|---|---------------------------------------|
| longitudinal pressure waves | = | amayengo g'omunyigilo amakiibi        |
| sound                       | = | ekivugo                               |
| sound velocity              | = | embilolazi y'ekivugo                  |
| sound reflection            | = | okuwetakakwa kw'ekivugo               |
| sound intensity             | = | obunyiinyiitivu bw'ekivugo            |
| relative intensity          | = | obunyiinyiitivu obugandaganyi         |
| dynamic range               | = | olutuukilo olujuluzi                  |
| sound attenuation           | = | okuseleba/ okuseebengelela kw'ekivugo |
| limits of human hearing     | = | amakomo g'okuwulila kw'omuntu         |
| sound interference          | = | okuyingilana kw'ekivugo               |
| beat                        | = | omudigido                             |
| sound diffraction           | = | okumenyekawuma kw'ekivugo             |
| sound localization          | = | okufowaza ekivugo                     |
| active noise cancellation   | = | okwetangila okuwoggana okwenyigilemu  |
| Doppler effect              | = | ekileetelo ekiDoppler                 |

|           |   |                   |
|-----------|---|-------------------|
| Mach cone | = | olusoggo lwa Mach |
| resonance | = | okuvuganata       |
| tone      | = | akaleego          |

## 17. TEMPERATURE (Obubugumye)

|                                  |   |   |
|----------------------------------|---|---|
| thermal equilibrium              | = | obuzitonkanyi bw'ebbugumu                 |
| heat                             | = | embugumya                                 |
| thermal energy                   | = | ebbugumu                                  |
| temperature                      | = | obubugumye                                |
| thermometer                      | = | ekipimabubugumye                          |
| Zeroth Law of Thermodynamics     | = | Etteeka ly a Kajjuluzabbugumu elya Zzeelo |
| temperature scales               | = | endaala z'obubugumye                      |
| absolute zero                    | = | zzeelo ggeleggele                         |
| Third Law of Thermodynamics      | = | Etteeka ly a Kajjuluzabbugumu ely'Okusatu |
| measuring temperature            | = | okupima obubugumye                        |
| triple point of water            | = | akatonnyo k'amazzi ak'essalila            |
| thermal contact                  | = | okukwatana kw'ebbugumu                    |
| thermal expansion                | = | okwongezesewa ebbugumu                    |
| linear expansion                 | = | okweyongela mu buwanvu                    |
| linear expansion coefficient     | = | ennambagano y'okweyongela endayinisi      |
| bimetallic strip                 | = | akalele nnammetalibbilye                  |
| area expansion                   | = | okweyongela mu bbangaja                   |
| volume expansion                 | = | okweyongela mu bbangajja                  |
| surface temperature of the Earth | = | obubugumye bw'olwenyi lwa Nnattaka        |
| temperature of the Universe      | = | obubugumye bw'Ebbunilo                    |

18. **HEAT AND THE FIRST LAW OF THERMODYNAMICS** (Embugumya n'Etteeka ly  
Kajjuluzabbugumu Elisooka)

|                                 |   |  |
|---------------------------------|---|--|
| system                          | = | omuyungo                                   |
| environment                     | = | obwetooloole                               |
| mechanical equivalent of heat   | = | ekiwendonkanyi ekimakanika eky'embugumya   |
| thermodynamic process           | = | enkwajja ejjuluzabbugumu                   |
| heat and work                   | = | embugumya n'omulimi                        |
| pV-diagram                      | = | olukobayime-pV                             |
| path-dependent process          | = | enkwajja eyesigamakakubo                   |
| closed path                     | = | akakubo akaggale                           |
| thermodynamic system            | = | omuyungo omujjuluzabbugumu                 |
| open system                     | = | omuyungo omuggule                          |
| closed system                   | = | omuyungo omuggale                          |
| isolated system                 | = | omuyungo omuzingawaze                      |
| First Law of Thermodynamics     | = | Etteeka ly Kajjuluzabbugumu Elisooka       |
| First Law for special processes | = | Etteeka Elisooka ku lw'enkwajja enjawusiko |
| adiabatic process               | = | enkwajja etayisaamu                        |
| constant-volume process         | = | enkwajjo z'ebbangajja-lisikyusi            |
| isochoric process               | = | enkwajja ezibangajjankanyi                 |
| closed-path process             | = | enkwajja enkubo-nzigale                    |
| free expansion                  | = | okweyongela okulembe                       |
| constant-pressure processes     | = | enkwajja ennyigilo-zisikyusi               |
| isobaric processes              | = | enkwajjo ezinyigilonkanyi                  |
| constant-temperature process    | = | enkwajja embugumye-zisikyusi               |
| isothermal process              | = | olubugumunkanyi                            |
| isotherm                        | = | olubugumunkanyi                            |
| heat capacity                   | = | omubugumilo                                |
| specific heat                   | = | embugumya enjawuleko                       |
| calorimetry                     | = | obupimakalori                              |

|                                  |   |                                     |
|----------------------------------|---|-------------------------------------|
| calorimeter                      | = | ekipimakalori                       |
| latent heat                      | = | embugumye enkweke                   |
| states/ phases of matter         | = | embeela z'ekikwatabbanga            |
| phase change/ transition         | = | okukyuka kw'embeela                 |
| latent heat of fusion            | = | embugumya y'okusaanuuka enkweke     |
| latent heat of vaporization      | = | embugumya y'okufuumuuka enkweke     |
| sublimation                      | = | okuzimuwala                         |
| plasma                           | = | plasma                              |
| melting point                    | = | akatonnyo k'okusaanuuka             |
| boiling point                    | = | akatonnyo k'okwesela                |
| condensation point               | = | akatonnyo k'okukwafuwa              |
| modes of thermal energy transfer | = | engeli z'okusaza amaanyi ebugumu    |
| radiation                        | = | ekibuulabugulu                      |
| convection                       | = | ekitwalilawami                      |
| conduction                       | = | ekiyisaamu                          |
| thermal conductivity             | = | omuyitilomu omubugumusi             |
| thermal resistance               | = | obugugubi obubugumusi               |
| Stefan-Boltzmann equation        | = | ekyenkano kya Stefan-Boltzmann      |
| Stefan-Boltzmann constant        | = | ekisikyusi kya Stefan-Boltzmann     |
| emissivity                       | = | omubuuzilo                          |
| blackbody                        | = | omobiliddugavu                      |
| global warming                   | = | okubugumilila kwa Nnattaka          |
| greenhouse effect                | = | ekileetelo ky'ennyumbalagala        |
| heat in computers                | = | embugumya mu mbaziso                |
| geothermal power resources       | = | ensibuko z'omuyinzilo omubugumutaka |

## 19. IDEAL GASES (Ggaasi Enneelowooze)

|   |   |  |
|---|---|--|
| gas   | = | ggaasi   |
| mole  | = | mmoolo   |
| Boyle's Law                                       | = | Etteeka lya Boyle  |
| Charles's Law                                     | = | Etteeka lya Charles  |
| Gay-Lussac's Law                                  | = | Etteeka lya Gay-Lussac   |
| Avogadro's Law                                    | = | Etteeka lya Avogadro   |
| Ideal Gas Law                                     | = | Etteeka lya Ggaasi Elyelowooze                                 |
| universal gas constant                            | = | Ekisikyusi kya Ggaasi Ekibunyi                                 |
| work done by an ideal gas at constant temperature | = | omulimu ogukolebwa ggaasi enneelowooze ku bubugumye obutakyuka |
| compressed air energy storage                     | = | okuteleka amaanyi g'empewo ennyigawame                         |
| Dalton's Law                                      | = | Etteeka lya Dalton   |
| partial pressure                                  | = | omunyigililo ogw'ekitundu                                      |
| mole fraction                                     | = | omumenye gwa mmoolo  |
| Earth's atmosphere                                | = | ebbangajjakka lya Nnattaka                                     |
| kinetic theory of an ideal gas                    | = | theoria ya ggaasi enneelowooze enkinetoka                      |
| equipartition theorem                             | = | theorema y'entundunkanya                                       |
| root-mean-square speed                            | = | embilopimi z'embiliguzo-kitema-mulandila                       |
| average kinetic energy of gas/ air molecules      | = | amaanyi amakinetika kitema aga molekulo za ggaasi/ empewo      |
| specific heat of an ideal gas                     | = | embugumya enjawuleko eya ggaasi ennelowooze                    |
| monatomic gas                                     | = | ggaasi nnaatomwemu   |
| specific heat at constant volume                  | = | embugumya enjawuleko nga ebbangajja telikyuka                  |
| diatomic gas                                      | = | ggaasi nnaatomubbilye  |
| polyatomic gas                                    | = | ggaasi nnaatomunningi  |
| specific heat at constant volume/ pressure        | = | embugumya enjawuleko nga ebbangajja/ omunyigilo teli/ gukyuka  |

|  |   |   |
|--|---|---|
| degrees of freedom   | = | digiri z'obulembe   |
| equipartition of energy  | = | okutundunkanya amaanyi  |
| specific heat at constant volume<br>for a diatomic/ polyatomic gas | = | embugumya enjawuleko nga ebbangajja telikyuka ku lwa ggaasi nnaatomubbilye/ nnyingi |
| ratio of specific heats  | = | embalagano y'embugumya enjawuleko   |
| adiabatic processes for an ideal<br>gas                            | = | enkwajja ezitayisaamu nga ggaasi nneelwooze   |
| pressure and volume in an<br>adiabatic process                     | = | omunyigilo n'ebbangajja mu nkajja etayisaamu  |
| work done by an ideal gas in<br>an adiabatic process               | = | omulimu ogukolebwa ggaasi enneelwooze mu nkajja etayisaamu                          |
| kinetic energy of gases  | = | theoria ya ggaasi enkinetika  |
| Maxwell speed distribution   | = | engeli Maxwell gy'agabanyaamu embilopimi  |
| Maxwell kinetic energy<br>distribution                             | = | engeli Maxwell gy'agabanyaamu amaanyi amakinetika                                   |
| temperature of the quark-gluon                                     |   |   |
| plasma   | = | obubugumye bwa plasma wa qwarka-glwoni  |
| mean free path   | = | akakubo akalembe kitema   |
| real gases   | = | ggaasi enkabala   |
| van der Waals' equation  | = | ekyenkano kya van der Waals'  |
| critical point   | = | akatonnyo ak'essalila   |

20. **THE SECOND LAW OF THERMODYNAMICS** (Etteeka lya Kajjuluzabbugumu Elyokibili)

|                         |   |                         |
|-------------------------|---|-------------------------|
| reversible process      | = | enkwajja ezzakakika     |
| irreversible process    | = | enkwajja etazzakakika   |
| heat engine             | = | yingini y'embugumya     |
| efficiency of an engine | = | omwekembilo gwa yingini |
| refrigerator            | = | ekinnyogozaazi          |

|  |   |  |
|--|---|--|
| coefficient of performance of refrigerator | = |  |
| heat pump                                  | = | ebbomba y'embugumya                      |
| ideal engine                               | = | yingini enneelowooze                     |
| Carnot engine                              | = | yingini ya Carnot                        |
| Carnot cycle                               | = | olwekulungo lwa Carnot                   |
| real engines                               | = | ziyingini wawu                           |
| Otto cycle                                 | = | olwekulungo lwa Otto                     |
| real Otto engines                          | = | yingini za Otto wawu                     |
| Diesel cycle                               | = | olwekulungo lwa Diesel                   |
| hybrid cars                                | = | eggaali entabike                         |
| Second Law of Thermodynamics               | = | Etteeka ly a Kajjuluzabbugumu Elyokubili |
| Carnot Theorem                             | = | Theorema ya Carnot                       |
| entropy                                    | = | obucankalanye                            |
| microscopic interpretation of energy       | = | entaputa y'obucankalanye endabisatono    |
| microscopic state                          | = | embeela endabisatono                     |
| macroscopic state                          | = | embeela endabisanene                     |
| entropy death                              | = | okufa kw'embugumya kw'ebbunilo           |

**21. COMING SOON:**

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