**B. S. PHYSICS – APPLIED PHYSICS CHECK SHEET**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Date Taken** | **Grade Rec’d** |  | **Date Grade****Taken Rec’d** |

|  |  |  |
| --- | --- | --- |
| ***Learning Skills (9 cr)*** |  |  |
| ENGL 101 Composition I (3) |   |   |
| ENGL 202 Composition II, Soph. level (3 ) |   |   |
| MATH 125 Calculus I –Physics, … (3) |   |   |
|  |  |  |
| ***Humanities (9 cr)*** |  |  |
| HIST 195/196/197 US/Europe/Global (3) |   |   |
| ENGL 121/FNLG 121 Humanities Lit (3) |   |   |
| PHIL 122/ REST 110 (3) |   |   |
|  |  |  |
| ***Fine Arts (3 cr)*** |  |   |
| ARHI 101 Intro to Art (3) **or** |  |  |
| MUHI 101 Intro to Music (3) **or** |  |  |
| THTR 101 Intro to Theater (3) **or** |  |  |
| DANC 102 Intro to Dance (3) |   |   |
|  |  |  |
| ***Natural Science (8 cr)*** |  |  |
| PHYS 131 Physics I-Calc Lect (3)  |   |   |
| PHYS 141 Physics I-Calc Lab (1)  |   |   |
| PHYS 132 Physics II-Calc Lect (3)  |   |   |
| PHYS 142 Physics II-Calc Lab (1)  |   |   |
|  |  |  |
| ***\*Social Science (9 cr)*** |  |  |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |   |   |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |   |   |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |   |   |
|  |  |  |
| ***Health and Wellness (3-4 cr)*** |  |  |
| HPED 143 Health & Wellness (3) |  |  |
| FDNT 143 Nutrition & Wellness (3) **or** |  |  |
| MLSC 101 World Military Hist (2) **and** |  |  |
| MLSC 102 American Military Hist (2) |   |   |
|  |  |  |
| ***Liberal Studies Electives (3 cr)*** |  |  |
| MATH 126 Calculus II – Physics (3) |   |   |
|  |  |  |
| ***Liberal studies total ( 44 cr)*** |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
| **Chemistry (19 cr)** |  |  |
| CHEM 231 Organic Chemistry I (4) |   |   |
| CHEM 323 Analytical Methods (4) |   |   |
| CHEM 341 Physical Chemistry I (4) |   |   |
| CHEM 342 Physical Chemistry II (4) |   |   |
| CHEM 343 Phys. Chem Lab I (1) |   |   |
| MATH 225 Calculus III (3) |   |   |
|  |  |  |
|  |  |  |
| ***Required Courses (28 cr)*** |  |  |
| PHYS 231 Electronics (4) |   |   |
| PHYS 331 Modern Physics (3) |   |   |
| PHYS 342 Thermal & Stat Phys (3) |   |   |
| PHYS 345 Optics (3) |   |   |
| PHYS 350 Intermediate Exp Phys (3) |   |   |
| PHYS 355 Computer Int’facing (3) |   |   |
| PHYS 441 Classical Mechanics (3) |   |   |
| PHYS 451 Electricity & Magnetism (3) |   |   |
| PHYS 474 Phys of Semicon Dev (3) |   |   |
|  |  |  |
| ***Other Requirements (17 – 23 cr)*** |  |  |
| CHEM 111 General Chemistry I (4) |   |   |
| CHEM 112 General Chemistry II (4) |   |   |
| COSC 110 Structured Prog (3) |   |   |
| MATH 241 Diff Equations (3) |   |   |
|  |  |  |
| ***Foreign Language§ (0-6 cr)*** |  |  |
| FRNC 201 & 202 (College French I&II) **or** |   |   |
| GRMN 251 & 252 (German III&IV) **or** |   |   |
| SPAN 102 & 201 (Elm Sp & Int Sp (6 cr)† |   |   |
|  |  |  |
| ***Controlled Electives: According to Track******(18 – 21 cr)*** |
| **Nanomanufacturing Technology (18 cr)** |
| *Students in NMT will spend one summer semester, at* |
| *Penn State for controlled electives. GPA ≥ 3.0* |
| NMTT 311 Mat, Safe & Equip (3) |   |   |
| NMTT 312 Basic nanofabrication (3) |   |   |
| NMTT 313 Thin Films (3) |   |   |
| NMTT 314 Lithography & Pat Tech (3) |   |   |
| NMTT 315 Mat Modification (3) |   |   |
| NMTT 316 Charc, Pack & Testing (3) |   |   |
| PHYS 475 Physics Semiconductor I (3) |   |   |
| PHYS 476 Physics Semiconductor II (3) |   |   |
|  |  |  |
| **Solid State Electronics (21 cr)** |  |  |
| PHYS 342 Thermal & Stat Physics (3) |   |   |
| PHYS 353 Solid State Elect. Lab (3) |   |   |
| PHYS 432 Advanced Electronics (3) |   |   |
| PHYS 475Physics Semiconductor I (3) |   |   |
| COSC 300 Comp Org & Asbly Lang(3) |   |   |
| MATH 342 Adv Math for Apps (3) |   |   |
|  |  |  |
| **Computer Science (21 cr)** |  |  |
| COSC 300 Comp Org & Assembly Lang (3) |   |   |
| COSC 410 Computer Architecture (3) |   |   |
| COSC 450 Applied Numerical Methods (3) |   |   |
| PHYS 355 Computer Interfacing (3) |   |   |
| PHYS 342 Thermal and stat Physics (3) |   |   |
| PHYS 432 Advanced Electronics (3) |   |   |
|  |  |  |

|  |  |  |
| --- | --- | --- |
|  | **Date** | **Grade** |
|  | **Taken** | **Rec’d** |
| **Geology (21 cr)** |  |
| GEOS 201 Foundations of Geology (4) |   |   |
| GEOS 202 Quant. Methods of Geos (2) |   |   |
| GEOS 203 Surficial Processes (4) |   |   |
| GEOS 341 Planetary Geology (4) |   |   |
| GEOS 342 Stellar Astronomy (4) |   |   |
| GEOS 371 Meteorology (3) |   |   |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  | **Date** | **Grade** |
|  | **Taken** | **Rec’d** |
| B**iology (19 cr)** |   |   |
| BIOL 111 Principles of Bio I (4) |   |   |
| BIOL 112 General Zoology (3) |   |   |
| CHEM 231 Organic Chemistry I (4) |   |   |
| CHEM 351 Biochemistry (4) |   |   |
| *Choose (1) of the following:* |   |   |
| BIOL 250 Microbiology (3) |   |   |
| BIOL 263 Genetics (3) |   |   |
| BIOL 401Lab Meth Bio/BioTech(3) |   |   |
|  |  |  |
| **Free Electives** **(4-13 cr)** |  |  |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |   |   |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |   |   |
| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |   |   |
|  |  |  |
| **Total Degree Requirements:** |  | **120** |

\* If one of these courses does not meet the Non-western cultures requirement, then an elective must be used.

† Total credits from SPAN 102 (4) and SPAN 201 (4) is 8 cr. 2 cr must be included in electives.

§ Six credits of computer programming language will substitute for foreign language requirement:

 COSC 110, 210 or higher-level computer science courses (COSC 250 recommended), with department permission.