



## CHEMICAL ENGINEERING ELECTIVES

\*Updated 5.2.23

**READ THIS FIRST!** Things to know as you explore which electives you might take:

- Definition of an engineering elective: Any elective that includes engineering design elements in the course and has been approved by the Undergraduate Curriculum Committee as an engineering elective. Do not assume that any engineering course is an engineering elective.
- Definition of a technical elective: Math, science, or engineering courses that are approved by the Undergraduate Curriculum Committee as a technical elective. All engineering electives are also included on the technical elective list.
- Courses in **bold** don't require any prerequisites beyond the courses already in your Degree Plan. Courses in *italics* require prerequisites that you may not have, unless you have a double major or minor in that area. This means that **most students should stick to exploring the courses that are in bold**, not in italics. Please keep in mind that this is just a guide, and you should check the course catalog for the most up to date prerequisites for each course.
- Courses in **red** are recently approved as electives and haven't yet been added to the Advisement Report system. You can still enroll in these courses; you just need to make sure to contact your advisor so they can manually add the course into your report.
- The superscripts can be useful for some students. An <sup>o</sup> indicates that the course is sometimes offered online, <sup>s</sup> denotes that the course may be offered in the summer, <sup>g</sup> means that the course can double dip as a General Education course, and <sup>n</sup> indicates that Advanced Standing is not required for the course (Freshman and Sophomores can take these).
- To figure out which electives you might enjoy, go to the catalog (<https://catalog.arizona.edu/>), choose the **courses** drop down (top left), then select **course descriptions**. From here, you can **choose the first letter** for the subject you are interested in and view all the courses offered in that department. Next, read the description, see when it is normally offered, and what the prerequisites are.
- Keep in mind that many courses can **double dip** with a minor. There are a few minors that you can complete entirely (or nearly entirely) just by double dipping your electives with the minor. Check out the **D2L** to explore the most popular minors our students take.
- Still stuck? Ask friends and classmates which electives they enjoyed and found manageable.
- If you find a course that is not on the list, but you think should be on the list, contact your advisor and we'll send it to the Undergraduate Curriculum Committee for review.

**UNIVERSITY OF ARIZONA**  
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## **ENGINEERING ELECTIVES**

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**Aerospace & Mechanical Engineering:** AME 300, AME 313<sup>s</sup>, AME 480

**Atmospheric Sciences:** ATMO 469A, ATMO 469B

**Biosystems Engineering:** BE 334<sup>oSN</sup>, BE 426, BE 444<sup>n</sup>, BE 452, BE 455, BE 458, BE 459, BE 475A<sup>n</sup>, BE 479, BE 481A, BE 482

**Biomedical Engineering:** BME 416<sup>n</sup>, BME 466

**Civil Engineering:** CE 370R, CE 381, CE 455, CE 476, CE 478

**Chemical & Environmental Engineering:** CHEE 370R, CHEE 400R, CHEE 412, CHEE 437, CHEE 438, CHEE 474, CHEE 475, CHEE 476, CHEE 478, CHEE 481A, CHEE 481B, CHEE 482, CHEE 483, CHEE 485, CHEE 487, CHEE 489

**Chemistry:** CHEM 437

**Electrical & Computer Engineering:** ECE 304A, ECE 320A, ECE 351C, ECE 415, ECE 446<sup>o</sup>

**Engineering:** ENGR 422, ENGR 435, ENGR 436, ENGR 452, ENGR 498A, ENGR 498B

**Entrepreneurship:** ENTR 436<sup>n</sup>, ENTR 457

**Mining Engineering:** MNE 411, MNE 422, MNE 436, MNE 450, MNE 465, MNE 475

**Materials Science & Engineering:** MSE 331R, MSE 411, MSE 435, MSE 437, MSE 440, MSE 446, MSE 450, MSE 455, MSE 460

**Plant Science:** PLS 475AF, PLS 479

**Systems & Industrial Engineering:** SIE 406, SIE 408, SIE 413, SIE 415, SIE 454A, SIE 457, SIE 458, SIE 466<sup>s</sup>, SIE 473<sup>so</sup>, SIE 482

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## TECHNICAL ELECTIVES

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**Aerospace & Mechanical Engineering:** AME 300, **AME 301**, AME 302, **AME 313<sup>s</sup>**, **AME 313B<sup>n</sup>**, **AME 313C<sup>n</sup>**, AME 320, AME 321, AME 323, AME 324A, AME 324B, AME 324C, AME 324L, AME 331, AME 352, AME 400, AME 401, AME 410, AME 420, AME 422, AME 423, AME 424, AME 425, AME 426, AME 427, AME 429, AME 430, AME 431, AME 432, AME 433, AME 434, AME 442A, AME 442B, AME 444, AME 445, AME 446, AME 451, AME 452, AME 454, AME 455, AME 457, AME 460, AME 462, AME 463, **AME 466**, **AME 472**, **AME 480**, AME 483, **AME 487**, AME 488, AME 489A

**Astronomy:** ASTR 300A<sup>n</sup>, ASTR 300B, ASTR 302, **ASTR 320<sup>n</sup>**, **ASTR 325<sup>n</sup>**, **ASTR 333<sup>gn</sup>**, **ASTR 337**, ASTR 400A, ASTR 400B, **ASTR 403<sup>n</sup>**, **ASTR 418**, **ASTR 428**, **ASTR 442<sup>n</sup>**, **ASTR 450**, **ASTR 460**, **ASTR 475<sup>n</sup>**, **ASTR 485<sup>n</sup>**, **ASTR 488A<sup>n</sup>**

**Biosystems Engineering:** **BE 310<sup>n</sup>**, **BE 334<sup>osn</sup>**, **BE 385**, **BE 413**, **BE 423**, BE 426, **BE 428<sup>s</sup>**, **BE 444**, BE 447, **BE 452**, BE 455, BE 456, BE 458, **BE 459**, **BE 475A**, **BE 479**, **BE 481A**, **BE 482**, **BE 485**, **BE 487**

**Biochemistry:** BIOC 384, BIOC 385, BIOC 434, **BIOC 443**, BIOC 448A, BIOC 462A, BIOC 462B, BIOC 463A, BIOC 470, BIOC 471, BIOC 472

**Biomedical Engineering:** **BME 302**, BME 310, **BME 330**, BME 331, **BME 376**, **BME 416**, **BME 417**, BME 420, BME 447, **BME 461**, **BME 466**, BME 477, **BME 480**, **BME 481A**, **BME 481B**, BME 483, BME 484, BME 485, **BME 486**

**Civil Engineering:** **CE 301**, CE 303, **CE 310**, CE 323, **CE 329**, CE 333, CE 334, CE 335, CE 343, **CE 349**, **CE 363**, **CE 370L**, **CE 370R**, **CE 381**, CE 389, CE 402, CE 408A, CE 408B, CE 410, CE 422, CE 423, CE 424, CE 426, CE 427, **CE 429**, CE 432, CE 433, CE 434, CE 435, CE 437, CE 438, CE 440, CE 441, **CE 442**, CE 444, CE 445, CE 446, CE 448, **CE 449**, CE 455, CE 456, CE 458, CE 460, CE 462, **CE 462A**, CE 463, CE 464A, CE 465, CE 466, CE 467, CE 468, CE 469, **CE 473**, **CE 476**, **CE 478**, **CE 482**, CE 483, CE 485

**Chemical & Environmental Engineering:** **CHEE 370L**, **CHEE 370R**, CHEE 400A, CHEE 400B, **CHEE 400R**, CHEE 412, CHEE 437, **CHEE 438**, CHEE 473, CHEE 474, CHEE 475, CHEE 476, **CHEE 478**, CHEE 481A, CHEE 481B, CHEE 482, CHEE 483, **CHEE 485**, **CHEE 487**, **CHEE 489**

**Chemistry:** **CHEM 302A<sup>n</sup>**, **CHEM 325<sup>n</sup>**, CHEM 326, **CHEM 380<sup>ns</sup>**, CHEM 400A, CHEM 400B, CHEM 401A, **CHEM 404A**, CHEM 404B, CHEM 412, CHEM 436, **CHEM 437**, CHEM 439A, CHEM 446, CHEM 447, CHEM 448A, **CHEM 450**, **CHEM 480B**, **CHEM 481**

**Computer Science:** *CSC 317, CSC 335, CSC 337, CSC 346, CSC 345, CSC 372, CSC 380, CSC 422, CSC 425, CSC 433, CSC 436, CSC 437, CSC 444, CSC 445, CSC 447, CSC 450, CSC 452, CSC 453, CSC 460, CSC 466, CSC 473, CSC 477, CSC 483*

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**Data Science/Statistics:** DATA 367<sup>N</sup>, DATA 375<sup>o</sup>, DATA 396T, DATA 462<sup>N</sup>, DATA 467, DATA 496T

**Ecology & Evolutionary Biology:** ECOL 302, ECOL 310<sup>N</sup>, ECOL 320<sup>s</sup>, ECOL 320H, ECOL 321, ECOL 326<sup>s</sup>, ECOL 329A, ECOL 330<sup>N</sup>, ECOL 335, ECOL 340, ECOL 345, ECOL 346, ECOL 350, ECOL 360, ECOL 379<sup>N</sup>, ECOL 386<sup>N</sup>, ECOL 401, ECOL 403L, ECOL 403R, ECOL 404F, ECOL 404R, ECOL 405, ECOL 406L, ECOL 406R, ECOL 408L, ECOL 409, ECOL 410, ECOL 412A<sup>N</sup>, ECOL 412B<sup>N</sup>, ECOL 414<sup>NS</sup>, ECOL 415R, ECOL 418, ECOL 419, ECOL 421<sup>N</sup>, ECOL 423, ECOL 426, ECOL 428L, ECOL 428R<sup>N</sup>, ECOL 430<sup>s</sup>, ECOL 431, ECOL 432, ECOL 437, ECOL 440, ECOL 442, ECOL 447, ECOL 448A, ECOL 449A, ECOL 449B, ECOL 450, ECOL 451, ECOL 452, ECOL 453, ECOL 453L, ECOL 454, ECOL 457, ECOL 463, ECOL 464, ECOL 465, ECOL 467<sup>N</sup>, ECOL 472<sup>N</sup>, ECOL 473<sup>N</sup>, ECOL 474<sup>N</sup>, ECOL 479<sup>N</sup>, ECOL 480<sup>N</sup>, ECOL 482, ECOL 483<sup>N</sup>, ECOL 484<sup>N</sup>, ECOL 485<sup>N</sup>, ECOL 487L<sup>N</sup>, ECOL 487R, ECOL 488<sup>s</sup>

**Electrical & Computer Engineering:** ECE 304A, ECE 310, ECE 311, ECE 320A, ECE 330B, ECE 340A, ECE 351C, ECE 352, ECE 369A, ECE 370, ECE 372A, ECE 373, ECE 381A, ECE 403A, ECE 404, ECE 407, ECE 408, ECE 411, ECE 413, ECE 414A, ECE 415, ECE 417, ECE 421, ECE 429, ECE 430, ECE 434, ECE 435A, ECE 441A, ECE 442, ECE 446<sup>o</sup>, ECE 447A, ECE 450, ECE 451A, ECE 456, ECE 459, ECE 462, ECE 465, ECE 466, ECE 467, ECE 471, ECE 472, ECE 473, ECE 474A, ECE 478, ECE 479, ECE 484, ECE 486, ECE 488

**Engineering:** ENGR 367, ENGR 414, ENGR 420L, ENGR 420R<sup>s</sup>, ENGR 422, ENGR 423, ENGR 432<sup>s</sup>, ENGR 435, ENGR 436, ENGR 452, ENGR 481A, ENGR 488, ENGR 495A

**Environmental Science:** ENVS 320<sup>N</sup>

**Geography & Development:** GEOG 301<sup>NS</sup>, GEOG 302<sup>N</sup>, GEOG 303<sup>NS</sup>, GEOG 304<sup>N</sup>, GEOG 305<sup>N</sup>, GEOG 311A<sup>N</sup>, GEOG 311B<sup>N</sup>, GEOG 311C<sup>N</sup>, GEOG 311D<sup>N</sup>, GEOG 311E<sup>N</sup>, GEOG 311F<sup>N</sup>, GEOG 312<sup>N</sup>, GEOG 330<sup>NSO</sup>, GEOG 338<sup>N</sup>, GEOG 340<sup>N</sup>, GEOG 350<sup>NS</sup>, GEOG 357<sup>N</sup>, GEOG 362<sup>N</sup>, GEOG 365<sup>N</sup>, GEOG 367<sup>NSG</sup>, GEOG 368<sup>N</sup>, GEOG 370<sup>N</sup>, GEOG 371<sup>N</sup>, GEOG 372<sup>N</sup>, GEOG 373<sup>N</sup>, GEOG 374<sup>N</sup>, GEOG 375<sup>N</sup>, GEOG 376<sup>N</sup>, GEOG 378<sup>N</sup>, GEOG 379<sup>N</sup>, GEOG 380<sup>N</sup>, GEOG 401A, GEOG 401B<sup>N</sup>, GEOG 403<sup>NS</sup>, GEOG 404, GEOG 407<sup>N</sup>, GEOG 408<sup>N</sup>, GEOG 410<sup>N</sup>, GEOG 414<sup>OS</sup>, GEOG 415<sup>SO</sup>, GEOG 416A<sup>N</sup>, GEOG 416C, GEOG 416D, GEOG 416E, GEOG 416F, GEOG 417<sup>OS</sup>, GEOG 418<sup>o</sup>, GEOG 419, GEOG 420<sup>NO</sup>, GEOG 422<sup>s</sup>, GEOG 423<sup>N</sup>, GEOG 424, GEOG 430, GEOG 431A<sup>N</sup>, GEOG 435<sup>N</sup>, GEOG 439A<sup>N</sup>, GEOG 444<sup>N</sup>, GEOG 445<sup>N</sup>, GEOG 446<sup>s</sup>, GEOG 447, GEOG 453<sup>N</sup>, GEOG 454<sup>N</sup>, GEOG 455<sup>NS</sup>, GEOG 456<sup>N</sup>, GEOG 457<sup>N</sup>, GEOG 458<sup>N</sup>, GEOG 459<sup>N</sup>, GEOG 460<sup>N</sup>, GEOG 461<sup>N</sup>, GEOG 462<sup>N</sup>, GEOG 463<sup>N</sup>, GEOG 465<sup>N</sup>, GEOG 466, GEOG 468<sup>N</sup>, GEOG 469<sup>N</sup>, GEOG 471<sup>N</sup>, GEOG 472<sup>N</sup>, GEOG 473, GEOG 476<sup>N</sup>, GEOG 476U<sup>N</sup>, GEOG 480<sup>N</sup>, GEOG 482<sup>o</sup>, GEOG 483<sup>o</sup>, GEOG 488<sup>N</sup>

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**Geosciences:** *GEOS 300, GEOS 302, GEOS 304, GEOS 306, GEOS 308, GEOS 322, **GEOS 330<sup>NOS</sup>**, **GEOS 340<sup>N</sup>**, **GEOS 342<sup>N</sup>**, **GEOS 346**, **GEOS 346H**, *GEOS 356, **GEOS 400<sup>N</sup>**, **GEOS 403<sup>N</sup>**, **GEOS 404B**, **GEOS 404C**, *GEOS 405, **GEOS 408**, **GEOS 410<sup>N</sup>**, **GEOS 411<sup>N</sup>**, **GEOS 412A<sup>N</sup>**, *GEOS 412B, GEOS 414, GEOS 415, GEOS 416, GEOS 417, GEOS 418, **GEOS 419<sup>N</sup>**, GEOS 421, **GEOS 422<sup>N</sup>**, *GEOS 423, GEOS 424A, GEOS 425, GEOS 427, GEOS 430, GEOS 432, GEOS 434A, GEOS 436, GEOS 437, **GEOS 439A<sup>N</sup>**, GEOS 440, GEOS 442, GEOS 446, GEOS 447, **GEOS 448<sup>N</sup>**, *GEOS 450, GEOS 453, GEOS 456, GEOS 460, GEOS 462, GEOS 466, GEOS 469, GEOS 470L, GEOS 470R, GEOS 474A, **GEOS 477<sup>N</sup>**, GEOS 478, GEOS 479, **GEOS 481<sup>N</sup>**, **GEOS 482<sup>N</sup>**, **GEOS 484<sup>N</sup>**, **GEOS 486**, **GEOS 487<sup>N</sup>**, GEOS 489******

**Health Promotion Science:** **HPS 495<sup>NOS</sup>**

**Information Sci, Tech & Arts) Courses:** *ISTA 301<sup>NG</sup>*, **ISTA 302<sup>N</sup>**, *ISTA 303, ISTA 311, ISTA 320, ISTA 321, ISTA 322, ISTA 330, ISTA 331, ISTA 350, **ISTA 352<sup>N</sup>**, ISTA 355, *ISTA 370*, **ISTA 397S<sup>N</sup>**, **ISTA 401<sup>NG</sup>**, *ISTA 403, ISTA 410, **ISTA 416<sup>N</sup>**, ISTA 421, ISTA 424, ISTA 425, ISTA 429, ISTA 431<sup>OS</sup>, ISTA 439, ISTA 450, ISTA 451, **ISTA 454<sup>S</sup>**, ISTA 455<sup>OS</sup>, ISTA 456, ISTA 457, **ISTA 495<sup>NO</sup>****

**Math:** **MATH 302A<sup>N</sup>**, *MATH 302B, **MATH 310<sup>NS</sup>**, **MATH 313<sup>NS</sup>**, MATH 315, **MATH 322<sup>N</sup>**, *MATH 323<sup>S</sup>*, **MATH 330<sup>N</sup>**, *MATH 355, **MATH 361<sup>N</sup>**, **MATH 362<sup>N</sup>**, **MATH 396T<sup>N</sup>**, **MATH 401A<sup>N</sup>**, **MATH 401B<sup>N</sup>**, **MATH 402<sup>N</sup>**, *MATH 404, MATH 406A, MATH 406B, MATH 407, MATH 413, MATH 415A, MATH 415B, MATH 422<sup>S</sup>, MATH 424, MATH 425A, MATH 425B, MATH 432, MATH 443, MATH 445, MATH 446, MATH 447, MATH 454, MATH 456, **MATH 462<sup>N</sup>**, MATH 464, MATH 466, MATH 468, MATH 475A, MATH 475B, MATH 485, MATH 488, MATH 496T***

**Molecular & Cellular Biology:** *MCB 301, **MCB 303<sup>N</sup>**, MCB 304, MCB 305, **MCB 310<sup>N</sup>**, **MCB 315<sup>N</sup>**, MCB 325, MCB 330, MCB 340, MCB 360, MCB 361, **MCB 400<sup>N</sup>**, MCB 404, MCB 407, MCB 410, MCB 411, MCB 413, MCB 414, MCB 416A, MCB 422<sup>S</sup>, MCB 424L, MCB 424R, MCB 425, MCB 432, MCB 433, MCB 435, MCB 440, MCB 442, MCB 446, MCB 447, MCB 448A, MCB 449A, MCB 450, MCB 455, MCB 470, MCB 473, **MCB 479<sup>N</sup>**, MCB 480, MCB 481, MCB 482, MCB 484*

**Microbiology:** *MIC 305, **MIC 310<sup>N</sup>**, MIC 320, MIC 328L, MIC 328R, MIC 329A, MIC 340, MIC 350, MIC 403L, MIC 403R, MIC 419, MIC 420, MIC 421B, MIC 423, MIC 424<sup>S</sup>, MIC 425<sup>O</sup>, **MIC 426**, MIC 427L, MIC 427R, MIC 428L, **MIC 428R<sup>N</sup>**, MIC 430, **MIC 430L<sup>N</sup>**, MIC 432, MIC 433, **MIC 438<sup>N</sup>**, MIC 440, **MIC 443<sup>N</sup>**, MIC 446, MIC 450, MIC 452, MIC 454, MIC 456*

**Mining Engineering:** **MNE 402**, *MNE 407, **MNE 411**, MNE 411L, MNE 415, MNE 417, MNE 417L, MNE 418, MNE 419, **MNE 420**, **MNE 422**, **MNE 426**, MNE 427, MNE 430, MNE 436, MNE 438, **MNE 439**, MNE 441, **MNE 444**, **MNE 447**, MNE 450, **MNE 465**, **MNE 475**, MNE 476, **MNE 484***

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**Materials Science & Engineering:** MSE 300<sup>N</sup>, MSE 301<sup>N</sup>, MSE 302<sup>N</sup>, MSE 303<sup>N</sup>, MSE 304, MSE 331R, MSE 345<sup>o</sup>, MSE 360L<sup>o</sup>, MSE 365<sup>o</sup>, MSE 370<sup>o</sup>, MSE 404, MSE 405A<sup>NS</sup>, MSE 411, MSE 412, MSE 414, MSE 415<sup>o</sup>, MSE 424, MSE 425, MSE 434, MSE 435, MSE 437, MSE 440, MSE 446<sup>o</sup>, MSE 447L, MSE 450, MSE 455, MSE 460<sup>o</sup>, MSE 461, MSE 462, MSE 464, MSE 465, MSE 468, MSE 470, MSE 471, MSE 471L, MSE 480<sup>o</sup>, MSE 488, MSE 489

**Optical Sciences:** OPTI 300<sup>N</sup>, OPTI 306, OPTI 330, OPTI 340, OPTI 340A, OPTI 341, OPTI 345, OPTI 370, OPTI 380A, OPTI 380B, OPTI 403A, OPTI 404, OPTI 414, OPTI 414A, OPTI 415, OPTI 415L, OPTI 416, OPTI 420, OPTI 421, OPTI 421L, OPTI 423, OPTI 423L, OPTI 424A, OPTI 425, OPTI 428, OPTI 429, OPTI 430, OPTI 434, OPTI 435, OPTI 439A, OPTI 441, OPTI 447, OPTI 468, OPTI 469L, OPTI 471A, OPTI 471B, OPTI 475, OPTI 481A<sup>N</sup>, OPTI 484, OPTI 485, OPTI 489, OPTI 489A

**Pharmacology & Toxicology:** PCOL 300<sup>N</sup>, PCOL 305<sup>N</sup>, PCOL 310<sup>N</sup>, PCOL 350, PCOL 355, PCOL 390, PCOL 395<sup>N</sup>, PCOL 406, PCOL 410, PCOL 423, PCOL440, PCOL 473, PCOL 484<sup>N</sup>

**Pharmacology:** PHCL 412<sup>N</sup>, PHCL 422, PHCL 430, PHCL 442, PHCL444<sup>s</sup>, PHCL445<sup>N</sup>, PHCL 460

**Physics:** PHYS 305, PHYS 320<sup>N</sup>, PHYS 321, PHYS 331, PHYS 332, PHYS 371, PHYS 381, PHYS 382, PHYS 403<sup>N</sup>, PHYS 405, PHYS 422, PHYS 426, PHYS 427<sup>N</sup>, PHYS 431<sup>N</sup>, PHYS 439, PHYS 440, PHYS 450, PHYS 460, PHYS 468, PHYS 469, PHYS 472, PHYS 473, PHYS 476, PHYS 483, PHYS 484

**Physiology:** PSIO 303, PSIO 305, PSIO 380<sup>NO</sup>, PSIO 401, PSIO 404, PSIO 411, PSIO 420, PSIO 425, PSIO 426<sup>s</sup>, PSIO 427, PSIO 431<sup>s</sup>, PSIO 450, PSIO 452<sup>s</sup>, PSIO 465, PSIO 467, PSIO 469, PSIO 472, PSIO 478, PSIO 484, PSIO 485, PSIO 487, PSIO 489

**Planetary Sciences:** PTYS 342<sup>N</sup>, PTYS 403, PTYS 407<sup>N</sup>, PTYS 411<sup>N</sup>, PTYS 413<sup>N</sup>, PTYS 416<sup>N</sup>, PTYS 442<sup>N</sup>, PTYS 450<sup>N</sup>

**Renewable Natural Resources:** RNR 495F<sup>NS</sup>

**Science:** SCI 396A

**Systems & Industrial Engineering:** SIE 321, SIE 330R, SIE 340<sup>s</sup>, SIE 367, SIE 370, SIE 377, SIE 383, SIE 406, SIE 408, SIE 410A, SIE 411, SIE 413<sup>o</sup>, SIE 414, SIE 415, SIE 422, SIE 430, SIE 431, SIE 432<sup>s</sup>, SIE 433<sup>o</sup>, SIE 440, SIE 443, SIE 452, SIE 454A, SIE 455, SIE 456, SIE 457, SIE 458<sup>o</sup>, SIE 462, SIE 463, SIE 464, SIE 465, SIE 466<sup>OS</sup>, SIE 471, SIE 472, SIE 473<sup>SO</sup>, SIE 477, SIE 482, SIE 483, SIE 484, SIE 487