



PLAN STUDIÓW

WYDZIAŁ: Wydział Podstawowych Problemów Techniki
STUDIA: Studia II-go stopnia magisterskie, Stacjonarne (dienne)
KIERUNEK: Fizyka
SPECJALNOŚĆ: Condensed Matter Physics
SPECJALIZACJA:

Uchwała z dnia 12-07-2012
Obowiązuje od 01-10-2012

1. Zestaw kursów obowiązkowych i wybieralnych w układzie semestralnym:



Wydruk planu studiów PO-W11-FIZAN-CMP- -ST-IIM-WRO- /2013

Politechnika
Wroclawska

Semestr 1

Kursy obowiązkowe:

| Lp. | Kod kursu/ grupy kursów | Nazwa kursu/ grupy kursów | Tygodniowa liczba godzin | | | | | Liczba godzin ZZU | Liczba godzin CNPS | Liczba punktów ECTS | Forma zaliczenia |
|--------|----------------------------|-----------------------------------|-----------------------------|---|---|---|---|-------------------------|--------------------------|---------------------------|---------------------|
| | | | w | ć | l | p | s | | | | |
| 1 | FTP002983W | Quantum Optics | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| 2 | FZP002940C | Quantum Mechanics 1 | | 4 | | | | 60 | 150 | 5,00 | Zaliczenie |
| 3 | FZP002940W | Quantum Mechanics 1 | 2 | | | | | 30 | 90 | 3,00 | Egzamin |
| 4 | FZP002941W | Physics of Dielectrics | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| 5 | FZP002942L | Laboratory-Physics of Dielectrics | | | 2 | | | 30 | 90 | 3,00 | Zaliczenie |
| 6 | FZP002943S | Physics of Semiconductors 1 | | | | | 2 | 30 | 60 | 2,00 | Zaliczenie |
| 7 | FZP002943W | Physics of Semiconductors 1 | 2 | | | | | 30 | 90 | 3,00 | Egzamin |
| 8 | INP002931C | Quantum Computing | | 2 | | | | 30 | 90 | 3,00 | Zaliczenie |
| 9 | INP002931W | Quantum Computing | 2 | | | | | 30 | 90 | 3,00 | Egzamin |
| Razem: | | | 10 | 6 | 2 | | 2 | 300 | 780 | 26,00 | |



Wydruk planu studiów PO-W11-FIZAN-CMP--ST-IIM-WRO- /2013

Politechnika
Wroclawska

Bloki kursów wybieralnych:

| Lp. | Kod kursu/ grupy kursów | Nazwa kursu/ grupy kursów | Tygodniowa liczba godzin | | | | | Liczba godzin ZZU | Liczba godzin CNPS | Liczba punktów ECTS | Forma zaliczenia |
|-----|----------------------------|--|-----------------------------|---|---|---|---|-------------------------|--------------------------|---------------------------|---------------------|
| | | | w | ć | l | p | s | | | | |
| 1 | FZP104177BK | PO-W11-FIZAN-CMP--ST-IIM-/12/S | | | | | | 60 | 120 | 4,00 | |
| | FZP002988W | Introduction to Relativity Theory | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002969C | Non-equilibrium Thermodynamics | | 2 | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002984W | Order and Disorder in Soft Matter | 2 | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP002962W | Group Theory in Condensed Matter Physics | 1 | | | | | 15 | 60 | 2,00 | Zaliczenie |
| | FZP002960W | Physics of Soft Matter | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FTP002984W | Nonlinear Optics | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP003033C | Introduction to the Theory of Relativity | | 2 | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP003029L | Research Laboratories: Fiber Optics | | | 2 | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP003031L | Research Laboratories: Physical Background of Information Processing | | | 2 | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP003033W | Introduction to the Theory of Relativity | 2 | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP002962C | Group Theory in Condensed Matter Physics | | 1 | | | | 15 | 90 | 3,00 | Zaliczenie |
| | FZP002986W | Dynamical Processes in Optics | 2 | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP002990L | Research Laboratories: Solid State Physics | | | 4 | | | 60 | 120 | 4,00 | Zaliczenie |
| | FZP002974C | Mathematical Methods in Physics | | 2 | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002966W | Physics of Nanostructures | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002971L | Computer Modelling of Nanostructures | | | 2 | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP002992L | Mini Project: Theoretical Physics | | | 4 | | | 60 | 120 | 4,00 | Zaliczenie |
| | FZP002958W | Light Matter Interaction | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002969W | Non-equilibrium Thermodynamics | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002971W | Computer Modelling of Nanostructures | 1 | | | | | 15 | 30 | 1,00 | Zaliczenie |
| | FZP002974W | Mathematical Methods in Physics | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002966S | Physics of Nanostructures | | | | | 2 | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002982Wc | Introduction to Quantum Inform | | | | | | 45 | 90 | 3,00 | Zaliczenie |
| | FZP002994Ws | Introduction to Cosmology | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP002998Wc | Mathematical Methods for Physi | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP002980Wc | Theory of Condensed Matter | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP002978Ws | Advanced Quantum Mechanics | | | | | | 60 | 150 | 5,00 | Zaliczenie |
| | FZP002996Wcs | Advanced Methods of Theoretica | | | | | | 120 | 180 | 6,00 | Zaliczenie |
| | FZP002976Ws | Statistical Physics | | | | | | 60 | 150 | 5,00 | Zaliczenie |
| | FZP002945Wl | Monte Carlo Simulations | | | | | | 60 | 120 | 4,00 | Zaliczenie |
| | INP002938Wl | Numerical Methods | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | INP002936Wl | Object Programming | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | INP002933Wl | Ab initio Methods | | | | | | 60 | 120 | 4,00 | Zaliczenie |
| | FZP009022Wc | Quantum optics | | | | | | 45 | 90 | 3,00 | Zaliczenie |
| | FZP009014Wc | Group theory in physics | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP009024Wc | Nano-technology and nano-struc | | | | | | 45 | 90 | 3,00 | Zaliczenie |
| | FZP009008Wc | Classical fiel theory | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP009046Wc | Many-body Quantum Mechanics | | | | | | 60 | 150 | 5,00 | Zaliczenie |
| | FZP009023Wc | Quantum electronics | | | | | | 45 | 90 | 3,00 | Zaliczenie |
| | FZP009015Wc | Relaxation in dielectrics | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP003036Ws | Dielectrics and ferroelectrics | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP003041Wc | Matter-radiation Interaction | | | | | | 60 | 180 | 6,00 | Zaliczenie |
| | FZP003043Wc | Non-equilibrium Statistical Ph | | | | | | 60 | 180 | 6,00 | Zaliczenie |
| | FZP009030Ws | Liquid cystals and polymers | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP009032Ws | Surface physics | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP009033Wl | Lasing Materials and Structure | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP009034Wl | Microwave technology | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | MAP009023Wc | Stochastic Equations | | | | | | 60 | 90 | 3,00 | Zaliczenie |
| | | Razem: | | | | | | 60 | 120 | 4,00 | |

Wydruk planu studiów PO-W11-FIZAN-CMP- -ST-IIM-WRO- /2013

Razem:

| Łączna liczba godzin | | | | | Łączna liczba godzin ZZU | Łączna liczba godzin CNPS | Łączna liczba punktów ECTS |
|----------------------|---|---|---|---|-----------------------------|------------------------------|-------------------------------|
| w | ć | l | p | s | | | |
| 10 | 6 | 2 | | 2 | 360 | 900 | 30 |



Wydruk planu studiów PO-W11-FIZAN-CMP- -ST-IIM-WRO- /2013

Politechnika
Wroclawska

Semestr 2

Kursy obowiązkowe:

| Lp. | Kod kursu/ grupy kursów | Nazwa kursu/ grupy kursów | Tygodniowa liczba godzin | | | | | Liczba godzin ZZU | Liczba godzin CNPS | Liczba punktów ECTS | Forma zaliczenia |
|--------|----------------------------|--|-----------------------------|---|---|---|---|-------------------------|--------------------------|---------------------------|---------------------|
| | | | w | ć | l | p | s | | | | |
| 1 | FZP002946C | Physics of Condensed Matter 1 | | 2 | | | | 30 | 60 | 2,00 | Zaliczenie |
| 2 | FZP002946S | Physics of Condensed Matter 1 | | | | | 1 | 15 | 30 | 1,00 | Zaliczenie |
| 3 | FZP002946W | Physics of Condensed Matter 1 | 2 | | | | | 30 | 90 | 3,00 | Egzamin |
| 4 | FZP002947W | Optics of Solid States and Semiconductor Structures | 2 | | | | | 30 | 90 | 3,00 | Zaliczenie |
| 5 | FZP002948L | Laboratory 2-Optics of Solid States and Semiconductor Structures 1 | | | 3 | | | 45 | 150 | 5,00 | Zaliczenie |
| 6 | FZP002949C | Quantum Mechanics 2 | | 3 | | | | 45 | 90 | 3,00 | Zaliczenie |
| 7 | FZP002949S | Quantum Mechanics 2 | | | | | 2 | 30 | 60 | 2,00 | Zaliczenie |
| 8 | FZP002949W | Quantum Mechanics 2 | 2 | | | | | 30 | 90 | 3,00 | Egzamin |
| 9 | FZP002950W | Kinetic Processes: Theory and Experiments | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| Razem: | | | 8 | 5 | 3 | | 3 | 285 | 720 | 24,00 | |



Wydruk planu studiów PO-W11-FIZAN-CMP--ST-IIM-WRO- /2013

Politechnika
Wroclawska

Bloki kursów wybieralnych:

| Lp. | Kod kursu/ grupy kursów | Nazwa kursu/ grupy kursów | Tygodniowa liczba godzin | | | | | Liczba godzin ZZU | Liczba godzin CNPS | Liczba punktów ECTS | Forma zaliczenia |
|-----|----------------------------|--|-----------------------------|---|---|---|---|-------------------------|--------------------------|---------------------------|---------------------|
| | | | w | ć | l | p | s | | | | |
| 1 | FZP104177BK | PO-W11-FIZAN-CMP--ST-IIM-/12/S | | | | | | 60 | 120 | 4,00 | |
| | FZP002988W | Introduction to Relativity Theory | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002969C | Non-equilibrium Thermodynamics | | 2 | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002984W | Order and Disorder in Soft Matter | 2 | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP002962W | Group Theory in Condensed Matter Physics | 1 | | | | | 15 | 60 | 2,00 | Zaliczenie |
| | FZP002960W | Physics of Soft Matter | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FTP002984W | Nonlinear Optics | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP003033C | Introduction to the Theory of Relativity | | 2 | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP003029L | Research Laboratories: Fiber Optics | | | 2 | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP003031L | Research Laboratories: Physical Background of Information Processing | | | 2 | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP003033W | Introduction to the Theory of Relativity | 2 | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP002962C | Group Theory in Condensed Matter Physics | | 1 | | | | 15 | 90 | 3,00 | Zaliczenie |
| | FZP002986W | Dynamical Processes in Optics | 2 | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP002990L | Research Laboratories: Solid State Physics | | | 4 | | | 60 | 120 | 4,00 | Zaliczenie |
| | FZP002974C | Mathematical Methods in Physics | | 2 | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002966W | Physics of Nanostructures | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002971L | Computer Modelling of Nanostructures | | | 2 | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP002992L | Mini Project: Theoretical Physics | | | 4 | | | 60 | 120 | 4,00 | Zaliczenie |
| | FZP002958W | Light Matter Interaction | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002969W | Non-equilibrium Thermodynamics | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002971W | Computer Modelling of Nanostructures | 1 | | | | | 15 | 30 | 1,00 | Zaliczenie |
| | FZP002974W | Mathematical Methods in Physics | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002966S | Physics of Nanostructures | | | | | 2 | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002982Wc | Introduction to Quantum Inform | | | | | | 45 | 90 | 3,00 | Zaliczenie |
| | FZP002994Ws | Introduction to Cosmology | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP002998Wc | Mathematical Methods for Physi | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP002980Wc | Theory of Condensed Matter | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP002978Ws | Advanced Quantum Mechanics | | | | | | 60 | 150 | 5,00 | Zaliczenie |
| | FZP002996Wcs | Advanced Methods of Theoretica | | | | | | 120 | 180 | 6,00 | Zaliczenie |
| | FZP002976Ws | Statistical Physics | | | | | | 60 | 150 | 5,00 | Zaliczenie |
| | FZP002945Wl | Monte Carlo Simulations | | | | | | 60 | 120 | 4,00 | Zaliczenie |
| | INP002938Wl | Numerical Methods | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | INP002936Wl | Object Programming | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | INP002933Wl | Ab initio Methods | | | | | | 60 | 120 | 4,00 | Zaliczenie |
| | FZP009022Wc | Quantum optics | | | | | | 45 | 90 | 3,00 | Zaliczenie |
| | FZP009014Wc | Group theory in physics | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP009024Wc | Nano-technology and nano-struc | | | | | | 45 | 90 | 3,00 | Zaliczenie |
| | FZP009008Wc | Classical fiel theory | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP009046Wc | Many-body Quantum Mechanics | | | | | | 60 | 150 | 5,00 | Zaliczenie |
| | FZP009023Wc | Quantum electronics | | | | | | 45 | 90 | 3,00 | Zaliczenie |
| | FZP009015Wc | Relaxation in dielectrics | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP003036Ws | Dielectrics and ferroelectrics | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP003041Wc | Matter-radiation Interaction | | | | | | 60 | 180 | 6,00 | Zaliczenie |
| | FZP003043Wc | Non-equilibrium Statistical Ph | | | | | | 60 | 180 | 6,00 | Zaliczenie |
| | FZP009030Ws | Liquid crystals and polymers | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP009032Ws | Surface physics | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP009033Wl | Lasing Materials and Structure | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP009034Wl | Microwave technology | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | MAP009023Wc | Stochastic Equations | | | | | | 60 | 90 | 3,00 | Zaliczenie |
| 2 | JZL100709BK | Języki obce KRK II st. (1ECTS) | | | | | | 15 | 30 | 1,00 | |
| | | Razem: | | | | | | 75 | 150 | 5,00 | |

Wydruk planu studiów PO-W11-FIZAN-CMP- -ST-IIM-WRO- /2013

Razem:

| Łączna liczba godzin | | | | | Łączna liczba godzin ZZU | Łączna liczba godzin CNPS | Łączna liczba punktów ECTS |
|----------------------|---|---|---|---|-----------------------------|------------------------------|-------------------------------|
| w | ć | l | p | s | | | |
| 8 | 5 | 3 | | 3 | 360 | 870 | 29 |



Wydruk planu studiów PO-W11-FIZAN-CMP- -ST-IIM-WRO- /2013

Politechnika
Wroclawska

Semestr 3

Kursy obowiązkowe:

| Lp. | Kod kursu/ grupy kursów | Nazwa kursu/ grupy kursów | Tygodniowa liczba godzin | | | | | Liczba godzin ZZU | Liczba godzin CNPS | Liczba punktów ECTS | Forma zaliczenia |
|--------|----------------------------|--|-----------------------------|---|---|---|---|-------------------------|--------------------------|---------------------------|---------------------|
| | | | w | ć | l | p | s | | | | |
| 1 | FZP002952S | Diploma Seminar 1 | | | | | 2 | 30 | 60 | 2,00 | Zaliczenie |
| 2 | FZP002954D | Diploma Thesis 1 | | | | | | 30 | 240 | 8,00 | Zaliczenie |
| 3 | FZP002955S | Physics of Condensed Matter 2 | | | | | 2 | 30 | 90 | 3,00 | Zaliczenie |
| 4 | FZP002955W | Physics of Condensed Matter 2 | 2 | | | | | 30 | 90 | 3,00 | Egzamin |
| 5 | FZP002956L | Laboratory 2-Optics of Solid State and Semiconductor Structures 2 | | | 3 | | | 45 | 90 | 3,00 | Zaliczenie |
| Razem: | | | 2 | | 3 | | 4 | 165 | 570 | 19,00 | |



Wydruk planu studiów PO-W11-FIZAN-CMP--ST-IIM-WRO- /2013

Politechnika
Wroclawska

Bloki kursów wybieralnych:

| Lp. | Kod kursu/ grupy kursów | Nazwa kursu/ grupy kursów | Tygodniowa liczba godzin | | | | | Liczba godzin ZZU | Liczba godzin CNPS | Liczba punktów ECTS | Forma zaliczenia |
|--------|----------------------------|--|-----------------------------|---|---|---|---|-------------------------|--------------------------|---------------------------|---------------------|
| | | | w | ć | l | p | s | | | | |
| 1 | FZP104177BK | PO-W11-FIZAN-CMP--ST-IIM-/12/S | | | | | | 90 | 270 | 9,00 | |
| | FZP002988W | Introduction to Relativity Theory | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002969C | Non-equilibrium Thermodynamics | | 2 | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002984W | Order and Disorder in Soft Matter | 2 | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP002962W | Group Theory in Condensed Matter Physics | 1 | | | | | 15 | 60 | 2,00 | Zaliczenie |
| | FZP002960W | Physics of Soft Matter | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FTP002984W | Nonlinear Optics | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP003033C | Introduction to the Theory of Relativity | | 2 | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP003029L | Research Laboratories: Fiber Optics | | | 2 | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP003031L | Research Laboratories: Physical Background of Information Processing | | | 2 | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP003033W | Introduction to the Theory of Relativity | 2 | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP002962C | Group Theory in Condensed Matter Physics | | 1 | | | | 15 | 90 | 3,00 | Zaliczenie |
| | FZP002986W | Dynamical Processes in Optics | 2 | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP002990L | Research Laboratories: Solid State Physics | | | 4 | | | 60 | 120 | 4,00 | Zaliczenie |
| | FZP002974C | Mathematical Methods in Physics | | 2 | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002966W | Physics of Nanostructures | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002971L | Computer Modelling of Nanostructures | | | 2 | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP002992L | Mini Project: Theoretical Physics | | | 4 | | | 60 | 120 | 4,00 | Zaliczenie |
| | FZP002958W | Light Matter Interaction | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002969W | Non-equilibrium Thermodynamics | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002971W | Computer Modelling of Nanostructures | 1 | | | | | 15 | 30 | 1,00 | Zaliczenie |
| | FZP002974W | Mathematical Methods in Physics | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002966S | Physics of Nanostructures | | | | | 2 | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002982Wc | Introduction to Quantum Inform | | | | | | 45 | 90 | 3,00 | Zaliczenie |
| | FZP002994Ws | Introduction to Cosmology | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP002998Wc | Mathematical Methods for Physi | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP002980Wc | Theory of Condensed Matter | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP002978Ws | Advanced Quantum Mechanics | | | | | | 60 | 150 | 5,00 | Zaliczenie |
| | FZP002996Wcs | Advanced Methods of Theoretica | | | | | | 120 | 180 | 6,00 | Zaliczenie |
| | FZP002976Ws | Statistical Physics | | | | | | 60 | 150 | 5,00 | Zaliczenie |
| | FZP002945Wl | Monte Carlo Simulations | | | | | | 60 | 120 | 4,00 | Zaliczenie |
| | INP002938Wl | Numerical Methods | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | INP002936Wl | Object Programming | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | INP002933Wl | Ab initio Methods | | | | | | 60 | 120 | 4,00 | Zaliczenie |
| | FZP009022Wc | Quantum optics | | | | | | 45 | 90 | 3,00 | Zaliczenie |
| | FZP009014Wc | Group theory in physics | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP009024Wc | Nano-technology and nano-struc | | | | | | 45 | 90 | 3,00 | Zaliczenie |
| | FZP009008Wc | Classical fiel theory | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP009046Wc | Many-body Quantum Mechanics | | | | | | 60 | 150 | 5,00 | Zaliczenie |
| | FZP009023Wc | Quantum electronics | | | | | | 45 | 90 | 3,00 | Zaliczenie |
| | FZP009015Wc | Relaxation in dielectrics | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP003036Ws | Dielectrics and ferroelectrics | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP003041Wc | Matter-radiation Interaction | | | | | | 60 | 180 | 6,00 | Zaliczenie |
| | FZP003043Wc | Non-equilibrium Statistical Ph | | | | | | 60 | 180 | 6,00 | Zaliczenie |
| | FZP009030Ws | Liquid cystals and polymers | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP009032Ws | Surface physics | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP009033Wl | Lasing Materials and Structure | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP009034Wl | Microwave technology | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | MAP009023Wc | Stochastic Equations | | | | | | 60 | 90 | 3,00 | Zaliczenie |
| 2 | JZL100710BK | Języki obce KRK II st. (2ECTS) | | | | | | 45 | 60 | 2,00 | |
| Razem: | | | | | | | | 135 | 330 | 11,00 | |



Wydruk planu studiów PO-W11-FIZAN-CMP- -ST-IIM-WRO- /2013

Razem:

| Łączna liczba godzin | | | | | Łączna liczba godzin ZZU | Łączna liczba godzin CNPS | Łączna liczba punktów ECTS |
|----------------------|---|---|---|---|-----------------------------|------------------------------|-------------------------------|
| w | ć | l | p | s | | | |
| 2 | | 3 | | 4 | 300 | 900 | 30 |



Wydruk planu studiów PO-W11-FIZAN-CMP- -ST-IIM-WRO- /2013

Politechnika
Wroclawska

Semestr 4

Kursy obowiązkowe:

| Lp. | Kod kursu/ grupy kursów | Nazwa kursu/ grupy kursów | Tygodniowa liczba godzin | | | | | Liczba godzin ZZU | Liczba godzin CNPS | Liczba punktów ECTS | Forma zaliczenia |
|--------|----------------------------|------------------------------|-----------------------------|---|---|---|---|-------------------------|--------------------------|---------------------------|---------------------|
| | | | w | ć | l | p | s | | | | |
| 1 | FZP002963W | Monographic Lecture 1 | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| 2 | FZP002965D | Diploma Thesis 2 | | | | | | 30 | 360 | 12,00 | Zaliczenie |
| 3 | FZP002967S | Diploma Seminar 2 | | | | | 2 | 30 | 60 | 2,00 | Zaliczenie |
| 4 | ZMP002901W | Microeconomics | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| Razem: | | | 4 | | | | 2 | 120 | 540 | 18,00 | |



Wydruk planu studiów PO-W11-FIZAN-CMP--ST-IIM-WRO- /2013

Politechnika
Wroclawska

Bloki kursów wybieralnych:

| Lp. | Kod kursu/ grupy kursów | Nazwa kursu/ grupy kursów | Tygodniowa liczba godzin | | | | | Liczba godzin ZZU | Liczba godzin CNPS | Liczba punktów ECTS | Forma zaliczenia |
|--------|----------------------------|--|-----------------------------|---|---|---|---|-------------------------|--------------------------|---------------------------|---------------------|
| | | | w | ć | l | p | s | | | | |
| 1 | FZP104177BK | PO-W11-FIZAN-CMP--ST-IIM-/12/S | | | | | | 165 | 360 | 12,00 | |
| | FZP002988W | Introduction to Relativity Theory | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002969C | Non-equilibrium Thermodynamics | | 2 | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002984W | Order and Disorder in Soft Matter | 2 | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP002962W | Group Theory in Condensed Matter Physics | 1 | | | | | 15 | 60 | 2,00 | Zaliczenie |
| | FZP002960W | Physics of Soft Matter | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FTP002984W | Nonlinear Optics | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP003033C | Introduction to the Theory of Relativity | | 2 | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP003029L | Research Laboratories: Fiber Optics | | | 2 | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP003031L | Research Laboratories: Physical Background of Information Processing | | | 2 | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP003033W | Introduction to the Theory of Relativity | 2 | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP002962C | Group Theory in Condensed Matter Physics | | 1 | | | | 15 | 90 | 3,00 | Zaliczenie |
| | FZP002986W | Dynamical Processes in Optics | 2 | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP002990L | Research Laboratories: Solid State Physics | | | 4 | | | 60 | 120 | 4,00 | Zaliczenie |
| | FZP002974C | Mathematical Methods in Physics | | 2 | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002966W | Physics of Nanostructures | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002971L | Computer Modelling of Nanostructures | | | 2 | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP002992L | Mini Project: Theoretical Physics | | | 4 | | | 60 | 120 | 4,00 | Zaliczenie |
| | FZP002958W | Light Matter Interaction | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002969W | Non-equilibrium Thermodynamics | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002971W | Computer Modelling of Nanostructures | 1 | | | | | 15 | 30 | 1,00 | Zaliczenie |
| | FZP002974W | Mathematical Methods in Physics | 2 | | | | | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002966S | Physics of Nanostructures | | | | | 2 | 30 | 60 | 2,00 | Zaliczenie |
| | FZP002982Wc | Introduction to Quantum Inform | | | | | | 45 | 90 | 3,00 | Zaliczenie |
| | FZP002994Ws | Introduction to Cosmology | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP002998Wc | Mathematical Methods for Physi | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP002980Wc | Theory of Condensed Matter | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP002978Ws | Advanced Quantum Mechanics | | | | | | 60 | 150 | 5,00 | Zaliczenie |
| | FZP002996Wcs | Advanced Methods of Theoretica | | | | | | 120 | 180 | 6,00 | Zaliczenie |
| | FZP002976Ws | Statistical Physics | | | | | | 60 | 150 | 5,00 | Zaliczenie |
| | FZP002945Wl | Monte Carlo Simulations | | | | | | 60 | 120 | 4,00 | Zaliczenie |
| | INP002938Wl | Numerical Methods | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | INP002936Wl | Object Programming | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | INP002933Wl | Ab initio Methods | | | | | | 60 | 120 | 4,00 | Zaliczenie |
| | FZP009022Wc | Quantum optics | | | | | | 45 | 90 | 3,00 | Zaliczenie |
| | FZP009014Wc | Group theory in physics | | | | | | 30 | 120 | 4,00 | Zaliczenie |
| | FZP009024Wc | Nano-technology and nano-struc | | | | | | 45 | 90 | 3,00 | Zaliczenie |
| | FZP009008Wc | Classical fiel theory | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP009046Wc | Many-body Quantum Mechanics | | | | | | 60 | 150 | 5,00 | Zaliczenie |
| | FZP009023Wc | Quantum electronics | | | | | | 45 | 90 | 3,00 | Zaliczenie |
| | FZP009015Wc | Relaxation in dielectrics | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP003036Ws | Dielectrics and ferroelectrics | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP003041Wc | Matter-radiation Interaction | | | | | | 60 | 180 | 6,00 | Zaliczenie |
| | FZP003043Wc | Non-equilibrium Statistical Ph | | | | | | 60 | 180 | 6,00 | Zaliczenie |
| | FZP009030Ws | Liquid cystals and polymers | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP009032Ws | Surface physics | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP009033Wl | Lasing Materials and Structure | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | FZP009034Wl | Microwave technology | | | | | | 30 | 90 | 3,00 | Zaliczenie |
| | MAP009023Wc | Stochastic Equations | | | | | | 60 | 90 | 3,00 | Zaliczenie |
| Razem: | | | | | | | | 165 | 360 | 12,00 | |



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Politechnika
Wroclawska

Razem:

| Łączna liczba godzin | | | | | Łączna liczba godzin ZZU | Łączna liczba godzin CNPS | Łączna liczba punktów ECTS |
|----------------------|---|---|---|---|--------------------------|---------------------------|----------------------------|
| w | ć | l | p | s | | | |
| 4 | | | | 2 | 285 | 900 | 30 |

2. Zestaw kursów przeznaczonych do realizacji w trybie zdalnego nauczania:

| Semestr | Kod kursu | Nazwy kursów realizowanych lub przeznaczonych do realizacji w trybie zdalnego nauczania: |
|---------|-----------|--|
| | | |

3. Zestaw egzaminów w układzie semestralnym:

| Semestr | Kod kursu | Nazwy kursów kończących się egzaminem: |
|---------|------------|--|
| 1 | FZP002940W | 1. Quantum Mechanics 1 |
| | FZP002943W | 2. Physics of Semiconductors 1 |
| | INP002931W | 3. Quantum Computing |
| 2 | FZP002946W | 1. Physics of Condensed Matter 1 |
| | FZP002949W | 2. Quantum Mechanics 2 |
| 3 | FZP002955W | 1. Physics of Condensed Matter 2 |

4. Deficyt punktów dopuszczalny na poszczególnych semestrach:

| Semestr | Dopuszczalny deficyt punktów po semestrze |
|---------|---|
| 1 | 8 |
| 2 | 8 |
| 3 | 8 |

Zaopiniowane przez wydziałowy organ uchwałodawczy samorządu studenckiego:

Opinia przedstawicieli Wydziałowego Samorządu Studenckiego o przedstawionym programie nauczania jest pozytywna.

.....
Data.....
Imię, nazwisko i podpis przedstawiciela studentów.....
Data.....
Podpis dziekana