

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Technical Drawings</b>		Code <b>1010104111010110009</b>
Field of study <b>Civil Engineering First-cycle Studies</b>	Profile of study (general academic, practical) <b>general academic</b>	Year /Semester <b>1 / 1</b>
Elective path/specialty <b>-</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>First-cycle studies</b>	Form of study (full-time, part-time) <b>part-time</b>	
No. of hours Lecture: - Classes: <b>15</b> Laboratory: <b>10</b> Project/seminars: <b>15</b>		No. of credits <b>3</b>
Status of the course in the study program (Basic, major, other) <b>other</b>		(university-wide, from another field) <b>university-wide</b>
Education areas and fields of science and art		ECTS distribution (number and %)
<b>Responsible for subject / lecturer:</b> mgr inż. Ewa Szumigala email: ewa.szumigala@put.poznan.pl tel. 61 665 2463 Faculty of Civil and Environmental Engineering ul. Piotrowo 5, 60-965 Poznań		<b>Responsible for subject / lecturer:</b> mgr inż. Sławomir Fiszer email: slawomir.fiszer@put.poznan.pl tel. 61 665 2481 Faculty of Civil and Environmental Engineering ul. Piotrowo 5, 60-965 Poznań
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Fundamentals of geometry and descriptive geometry.
2	<b>Skills</b>	Ability to gain information from recommended sources.
3	<b>Social competencies</b>	Understanding the necessity of constant actualisation and complementation of knowledge. Readiness to undertake co-operation within a team.
<b>Assumptions and objectives of the course:</b> Obtaining the ability to execute architectural and building drawings as well as the ability to read information from archival drawings. Elements of computer graphics in 2D.		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b> 1. Student knows technical drawings principles concerning execution and reading architectural and construction drawings - [K_W-02]		
<b>Skills:</b> 1. Student can read architectural and construction drawings and prepare graphic documentation using effective symbols and dimensioning rules - [K_U14] 2. Student can use information technology, Internet resources and other sources to collect information; student is able to integrate and interpret collected information - [K_U-17] 3. Student is able to create graphic documentation in CAD. - [-]		
<b>Social competencies:</b> 1. Student is capable to work individually as well as to co-operate within the team on a given assignment - [K_K01] 2. Student is responsible for the accuracy of obtained results of his/her work and is able to provide interpretation - [K_K02] 3. Student is aware of the necessity of improvement his/her professional and personal skills - [K_K06] 4. Student can formulate conclusions and describe results of his/her own work and is communicative in media presentations - [K_K09]		
<b>Assessment methods of study outcomes</b>		

W 02 Written tests and appreciation of self-made technical drawings. Criteria for evaluation: 100%-91%-5,0; 90%-81%-4,5; 80%-71%-4,0; 70%-61%-3,5; 60%-51%-3,0; < 50%-2,0. Grades are given for individual work with computer and creating a few technical drawings.

**Course description**

Standardisation in the technical drawing. Drawing instruments and materials. Drawing sheet sizes - rules for creating and folding. Graphical form of drawing sheets. Drawing scales. Line work - line type, thickness and application on construction drawings. Lettering. Graphical symbols of building materials. Definition of basic structural components of building. Drawing types included in building design documents and principles of their creation. Conventional and simplified graphical symbols used in architectural and construction drawings; general symbols, building component symbols, symbols for installations and appliances in buildings. General rules of dimensioning. Principles of dimensioning on construction drawings. Rules of preparing drawings for property condition surveys and documentation of redevelopments and modernisations.

Topics (computer drawing):

1. Creating basis objects: line, poliline, point, circle, ring, arch, area, elips, rectangle, polygon.
2. Modify: erase, copy, mirror, offset, array, lengthen (trim, extend, break, chamfer, fillet).
3. Dimension: linear, aligned, ordinate, diameter, angular, baseline, continue, leader, tolerance, center mark.
4. Layers.
5. Track points: endpoint, midpoint, intersection, center, quadrant.
6. Text style.

**Basic bibliography:**

1. PN-ISO 6707-1:2008 Budownictwo. Terminologia. Terminy ogólne
2. PN-EN ISO 5457:2002 Dokumentacja techniczna wyrobu. Wymiary i układ arkuszy rysunkowych
3. PN-EN ISO 128-23:2002 Rysunek techniczny. Ogólne zasady przedstawiania. Część 23: Linie na rysunkach budowlanych
4. PN-EN ISO 3098-0:2002 Dokumentacja techniczna wyrobu. Pismo. Część 0: Zasady ogólne
5. PN-B01030:2000 Rysunek budowlany. Oznaczenia graficzne materiałów budowlanych
6. PN-B-01025:2004 Rysunek budowlany. Oznaczenia graficzne na rysunkach architektoniczno-budowlanych
7. PN-ISO 7518:1998 Rysunek techniczny. Rysunki budowlane. Uprozczone przedstawianie rozbiórki i przebudowy
8. PN-B-01029:2000 Rysunek budowlany. Zasady wymiarowania na rysunkach architektoniczno-budowlanych
9. PN-ISO 129:1996 Rysunek techniczny. Wymiarowanie. Zasady ogólne. Definicje. Metody wykonania i oznaczenia specjalne.
10. Rysunek techniczny budowlany - E. Miśniakiewicz, W. Skowroński, Warszawa, Arkady 2007
11. Rysunek techniczny w budownictwie - J. Bieniasz, B. Januszewski, M. Piekarski, Oficyna Wydawnicza Politechniki Rzeszowskiej, Rzeszów 2009

**Additional bibliography:**

1. PN-EN ISO 5455:1998 Rysunek techniczny. Podziałki
2. PN-ISO 128-30:2006 Rysunek techniczny. Zasady ogólne przedstawiania. Część 30: Wymagania podstawowe dotyczące rzutów
3. PN-EN ISO 5456-1,2,3:2002 Rysunek techniczny. Metody rzutowania

**Result of average student's workload**

Activity	Time (working hours)
1. Participation in tutorials	15
2. Participations in projects and laboratories	25
3. Consultations	6
4. Preparing to the written tests	12
5. Drafting technical drawings at home	18
6. Solving written tests	4

**Student's workload**

Source of workload	hours	ECTS
Total workload	80	3
Contact hours	50	2
Practical activities	30	1