Piano formativo

del Corso* Intensivo Summer School in:

GIS AND BIM FOR DIGITAL INTEGRATED DESIGN

Anno Accademico	2020-21
Dipartimento	Pianificazione, design, tecnologia dell'architettura
Data Delibera approvazione di attivazione del corso in Dipartimento	25/03/2021
Direttore del Corso	Prof. Fabrizio Cumo
Numero minimo di ammessi	15
Numero massimo di ammessi	100
Requisiti di ammissione	First level degree or equivalent
Obiettivi formativi	The 2nd Edition of the Summer School aims to create a training course focused on the acquisition of knowledge about the opportunities, principles and advantages related to the management and organization of workflows based on ICT, with particular regard to BIM & GIS integrated methodologies, allowing the process development in a digital scenario. Methodological solutions and age-friendly and HBIM approaches related to the built environment will also be explored.

* Art. 1 punto 4 del Regolamento in Materia di Corsi di Master, Corsi di Alta Formazione, Corsi di Formazione, Corsi Intensivi D.R. 915/2018

- per Corso di Alta Formazione (CAF) il corso post - lauream professionalizzante di perfezionamento o approfondimento specialistico istituito in base alla L. 341/1990 art. 6. Vi si accede con la laurea, ha durata inferiore all'anno, consente l'acquisizione di massimo 20 Cfu e alla sua conclusione è rilasciato un attestato di frequenza;
- per Corso di Formazione (CF), il corso di aggiornamento professionale di durata inferiore all'anno che conferisce fino a un massimo di 10 Cfu. Vi si accede anche con il solo diploma di scuola media superiore e alla sua conclusione è rilasciato un attestato di frequenza;
- per Corsi Intensivi Summer/Winter School) i corsi, di norma residenziali, destinati a soggetti in possesso dei requisiti di cui all'art. 29 del presente regolamento, della durata da una a quattro settimane, connotati internazionalmente che conferiscono fino a un massimo di 10 Cfu e si concludono con il rilascio di un attestato di frequenza

Risultati di apprendimento attesi	Ability to operate within an integrated BIM & GIS process, critical ability in the approach to the multidisciplinary process, good ability to manage BIM models and the interaction with GIS, acquisition of modeling skills focusing on the construction process management, principles and applications of integrated management and project development with an age-friendly and HBIM approach.
Data di inizio delle lezioni	19/07/2021
Calendario didattico	Allegare o linkare
Stage	Non previsti
Modalità di erogazione della didattica	telematica
CFU assegnati	6
Docenti Sapienza responsabili degli insegnamenti e relativi curricula brevi (max mezza pagina)	Fabrizio Cumo Nuclerar Engineer (degree 110/110 con lode in 1992) Since 1999 confirmed researcher in Applied Physic Architettura Valle Giulia – University of Rome "La Sapienza" Since 2007 professor in Applied Applied Physic Architettura Valle Giulia – University of Rome "La Sapienza Director of the research center CITERA – Sapienza University President of the degree course in Project Managment -Sapienza University Director of the Master BIM (Building Integrated Modelling)- Sapienza University 2010-2014 Director of the Project managment Master Since 2002 operates in the Institute of the Valorisation and Restoration of Cultural Heritage of Italian CNR (ICVBC) –section of Rome "Marcello Paribeni" Leader of the research group for the evaluation of safety, securety and environmental comfort for operators and work of art (CNR ICVBC) in 22 museums of Lazio region(2004), in 7 pubblic library in Rome (2003) and in 13 churcs of the

	IXth Mountain Community of the Lazio region (2002) 2006 member of the Italian IPPC Commission for the Italian Ministry of Environment 2004 : member of the Italian Commission for the receving of EU Directive 2002/91/CE for the Ministry of Environment for the responsible use of energy in residential area and the use of renewable sources. 2010-2013 Italian Scientific responsible for the research center CITERA of the project Source - Sustainable Urban Cells - European bilateral research program Italy-kingdom of Sweden on behalf of the General Directorate of the Ministry of Education Research Internationalization 2013-2015 Communication Manager of the ENPI-MED Project "GreatMED" 2015-2017 Italian Scientific responsible for the research center CITERA of the project PRACTICE on the relvance of built environment on ageing society - European bilateral research program Italy-kingdom of Sweden on behalf of the General Directorate of the Ministry of Education Research Internationalization Is author of more than 180 papers regarding the fields of energetic, environmental applied physic (IAQ, heat transfer and lightning) and sustanable buildings
Eventuali partner convenzionati	Fare clic qui per immettere testo.
Sede di svolgimento Sapienza o sedi esterne (obbligo di Convenzione)	Sapienza con modalità online
Quota di iscrizione prevista ripartita massimo in due rate	€500,00
Eventuali quote di esenzioni parziali o totali dal pagamento della parte di quota di pertinenza del Dipartimento espresse in percentuali rispetto alla quota di iscrizione (max due tipi di esenzioni)	Fare clic qui per immettere testo.
Contatti di Segreteria	intsummschoolgis-bim.dpdta@uniroma1.it

SAPIENZA
UNIVERSITÀ DI ROMA

Piano delle Attività Formative

	Name of training activity	Responsible for teaching	Hours	Disciplanary Scientific Area	Type	Language	CFU/ECTS
Module 1	**GIS and BIM: Digital Transformation of the Construction Industry**						
1a	The Digital Transformation of the Construction Industry. A choice of Industrial Policy. Definitions and Considerations from EUBIM Task group Handbook; The strategic role of international standardization in BIM. Scenarios and Standards of the ISO standard 19650:2018**.**	Prof. Francesco Ruperto	2	ICAR 17	Didattica a distanza - Distance teaching	English	**2**
1b	BIM Terminology (BIM Dictionary) (30 min) Overview on BIM Uses and their applications (1h) Level of Information Need (1. 30 h) BIM Execution Plan -theory and group exercise (3h) **LIVE ACTIVITY**	Dr. Marzia Bolpagni	6	ICAR 17			
1c	Common Data Environment digital platforms in construction sector	Prof. Claudio Mirarchi	1				
1d	4D/5D Modeling & Management workflows	Prof. Simone Di Biase	1				
1e	Case studies	Ambientstudio	2				
		Sub total	***12***				
Module 2	**Historic building information modelling (HBIM)**						
2a	The integrated management of sustainable processes of requalification and recovery in the architectural and environmental heritage. Purpose of the activity is to learn what are the methods and tools to investigate and learn about historical architecture and	Prof. Tommaso Empler	4	ICAR 17	Didattica a distanza -	English	**1**

	subsequently organize the data for different types of processing: on one hand the use of ICT to communicate historical and cultural heritage; on the other hand, the use of HBIM to preserve and reuse existing buildings and areas.				Distance teaching		
2b	Digital methods and tools in the construction process for an efficient project management workflow: case histories of digital Twins for **Residential design solutions**	Sofia Agostinelli	2				
		Sub total	***6***				
Module 3	**GIS-BIM Theory and practice**						
3a	GIS and its integration with BIM methodologies. Geographic Information Systems and its integration with BIM methodologies. Why to integrate GIS with the BIM methodologies, tools and procedures? Beyond the 3D modelling: geography and GIS multi-thematic environment, additional dimensions of BIM data. City Information Models (CIM) to build and manage scenaries of the Smart City; Digital Twins and Big Data for cities and territories. Some GIS-BIM applications: complex asset management; design and maintenance process for linear infrastructures; tri-dimensional cadastre. Introduction to GIS, to relational DBMS, to Geo-Data; relations among concepts as Scale, Informative details and domains, LOD; Attributes and classifications from thematic overlay to BIM categories. Some operations in GIS-BIM integrated environment: • BIM feeding GIS Data throught aggregation and summarize; • GIS feeding BIM for new buildings context aware data Which models for GIS and BIM interoperability; 3D modeling in GIS environment; Cartographic models in BIM environment; Standardisation of data structures and interchange formats: sharing and integrated management of spatial data through the Common Data Environment (CDE).	Ing. Patrick Maurelli	6		Didattica a distanza - Distance teaching	English	**1**
		Sub total	***6***				
Module 4	**GIS and BIM case Histories**						

4a	Digital methods and tools in the construction process for an efficient project management workflow: case histories. **Interaction of Digital Twins & Artificial Intelligence systems aimed at optimizing processes**	Claudio Tomazzoli	2		Didattica a distanza - Distance teaching	English	**2**
4b	Analysis of integrated models and applicative case studies within the digital approach for planning and programming the activities through the process phases. The activity explores the theoretical and applicative aspects of an integrated 4D/5D project planning coming from the analysis of a 3D model, then proceding to the realization of a 5D model up to the different levels of a 4D programming. The approach also involves the description of different planning techniques both in the design and construction phases. Digital methods and tools in the construction process for an efficient project management workflow: case histories. **theoretical and applicative aspects of an integrated 4D/5D project planning**	Stefano Amista	4				
4c	Data Collection (Survey and GIS) – Information Modeling (3D Modelling) Building Understanding (Collaboration and Information Exchange /Visualisation) Decision Making	Prof Georgios Kapogiannis (The University of Nottingham Ningbo China)	2				
4d	Design and Modelling as well as the importance of manufacturing contribution (Asset Information Modelling and GIS), from a Business and Project perspective	Prof Georgios Kapogiannis	4				
4e	The Digital Transformation of the Construction Industry in ASIA-CHINA	Prof. Xing Shi	2				
5	Final test		2				
		Sub total	**16**				
	TOTALE ORE	**6 CFU**	**40**				**6**

Prova finale		SSD non previsto			*Elaborato, tesi, project work ecc..*
Altre attività		SSD non previsto			*Seminari, convegni ecc…*
		TOTALE CFU			

Il numero minimo di Cfu assegnabili ad una attività è 1 (ai sensi dell' art. 23 del Regolamento didattico d'Ateneo si precisa che 1 CFU corrisponde 6 – 10 ore di lezione frontale, oppure 9 - 12 ore di laboratorio o esercitazione guidata, oppure 20 - 25 ore di formazione professionalizzante a piccoli gruppi o di studio assistito).